

SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY

OVERSEAS AID

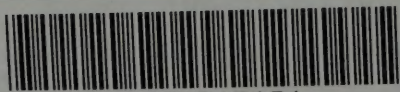
VOLUME II—EVIDENCE

Ordered to be printed 17 January 1990

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HOUSE OF LORDS

SESSION 1989-90
1st REPORT

SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY

OVERSEAS AID

VOLUME II—EVIDENCE

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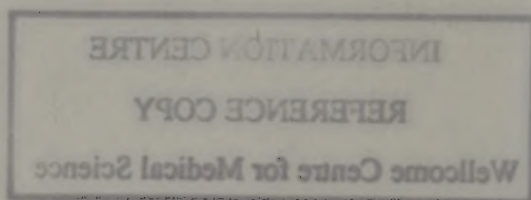
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VOLUME II—CONTENTS

ORAL EVIDENCE	Page
<i>Overseas Development Administration</i>	
Written Evidence	1
Oral Evidence, 1 March 1989	26
<i>British Council</i>	
Written Evidence	40
Oral Evidence, 22 March 1989	57
<i>Commonwealth Science Council</i>	
Written Evidence	73
Oral Evidence, 12 April 1989	74
<i>Commonwealth Development Corporation</i>	
Written Evidence	84
Oral Evidence, 26 April 1989	87
<i>Royal Society</i>	
Written Evidence	100
Oral Evidence, 3 May 1989	104
<i>Ordnance Survey</i>	
Written Evidence	117
Oral Evidence, 24 May 1989	121
<i>WaterAid</i>	
Written Evidence	128
Oral Evidence, 24 May 1989	130
<i>Intermediate Technology Development Group Limited</i>	
Written Evidence	136
Oral Evidence, 7 June 1989	144
<i>Christian Aid, OXFAM and CAFOD</i>	
Oral Evidence, 28 June 1989	155
<i>Agricultural and Food Research Council</i>	
Written Evidence	167
Oral Evidence, 12 July 1989	172
<i>Rt Hon Lynda Chalker MP</i>	
Oral Evidence, 22 November 1989	183
 WRITTEN EVIDENCE	
African Regional Centre for Technology	195
Agricultural and Food Research Council	195
All-Party Parliamentary Group on Population and Development	197
Association of the British Pharmaceutical Industry	202
BBC World Service	204
British Association for the Advancement of Science	205
British Consultants Bureau	206
British Council	207
British Petroleum plc	208
Building Research Establishment, Department of the Environment	214
Professor A H Bunting	214
Centre for Tropical Veterinary Medicine	218
Committee of Vice-Chancellors and Principals	219
Department of Trade and Industry	220
Food and Agriculture Organization of the UN	223
General Electric Company plc	224
Glaxo Holdings plc	226

	<i>Page</i>
Dr P Gummett	228
Professor David Hawkrige	229
Hydraulics Research	229
Institute of Biology	234
International Institute for Environment and Development	236
International Maritime Organization	237
International Pesticide Application Research Centre	240
Ministry of Defence	240
Natural Environment Research Council	246
Organisation for Economic Co-operation and Development	251
Organisation of Eastern Caribbean States	252
Overseas Development Administration	254
Overseas Development Natural Resources Institute	264
Overseas Development Institute	270
OXFAM	271
Oxford Forestry Institute	271
Dr Omar Abdul Rahman	274
Remote Sensing Society	275
Paul Richards	278
Royal Institution of Chartered Surveyors	280
Science and Engineering Research Council	282
Sri Lanka—High Commission	282
Dr T W Tanton	283
Tsetse Research Laboratory	286
United Nations Industrial Development Organization	288
University of Birmingham	292
University of East Anglia	293
University of Keele	293
University of Southampton	294
University of Stirling	295
Zambia—Ministry of Higher Education, Science and Technology	295
Zimbabwe—Ministry of Finance, Economic Planning and Development	295

Note: References in the text of the Report are as follows:

- (Q) refers to a question in oral evidence in Volume II;
- (P) refers to a page in Volume II.

MINUTES OF EVIDENCE

TAKEN BEFORE THE

SELECT COMMITTEE ON SCIENCE
AND TECHNOLOGY

(SUB-COMMITTEE I)

Wednesday 1 March 1989

OVERSEAS DEVELOPMENT ADMINISTRATION

*Mr R M Ainscow, Mr A J Bennett, Dr J M Healey, Mr T D Pike and
Mrs B M Kelly*

*Ordered to be printed pursuant to the Order of The House of Lords of
29 November 1988*

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MINUTES OF EVIDENCE

TAKEN BEFORE THE SELECT COMMITTEE ON SCIENCE AND TECHNOLOGY
(SUB-COMMITTEE I)

WEDNESDAY 1 MARCH 1989

Present:

Adrian, L.	Shackleton, L.
Caldecote V. (Chairman)	Taylor of Blackburn, L.
Ilchester, E.	Thurlow, L.
Perry of Walton, L.	White, B.

Memorandum by the Overseas Development Administration

THE UNITED KINGDOM'S SCIENTIFIC AND TECHNICAL AID TO DEVELOPING COUNTRIES

Objectives

1. The basic purpose of the aid programme is to promote sustainable economic and social development and alleviate poverty in developing countries. For aid to be effective this requires working with others to encourage sound policies within developing countries calculated to promote long term economic growth. It means financing with aid funds activities which are technically feasible, financially sound, take full account of environmental considerations and produce sufficient economic and social benefits to justify the spending.

2. If aid is to support sustainable development it is important that in selecting and designing aid funded projects donors and recipient countries together:

- (i) adopt technologies appropriate to the economic circumstances and human resource base of the country concerned; and
- (ii) ensure that the local institutions responsible for implementing projects have the managerial and technical skills to sustain their operation.

3. Change in the science and technology applied within countries is an inherent part of the development process. It is embodied within much that we support under the aid programme: in the equipment we provide for new investment projects, in the provision of British experts to work in developing countries, and in the training of developing country personnel in Britain. Those fields where, in relation to aid programmes, we consider science and technology has the greatest contribution to make are reflected in the ODA's standing professional capacity, including its own scientific institution (the Overseas Development Natural Resources Institute (ODNRI)); and in the professional groupings within ODA Headquarters (Renewable Natural Resources, Health and Population, Engineering, Education and Economic and Social); and in the specialised institutions we support in Britain and, together with other donor countries, internationally.

4. Britain provides aid through bilateral channels and through contributions to multilateral aid institutions, including the European Community. Bilateral aid, which accounts for about 60 per cent of the aid programme, includes aid provided directly to individual developing countries on a government to government basis (bilateral country programmes), the support given to British institutions working on research and development problems relevant to developing countries and to British non-governmental organisations working overseas; ODA's contribution to the work of the British Council overseas; and the aid loans advanced to the Commonwealth Development Corporation which is responsible to the Minister for Overseas Development.

5. Multilateral aid includes Britain's share of European Community aid programmes, its contributions to the international development finance institutions (notably the World Bank, Regional Development Banks, and the International Fund for Agricultural Development) and support for United Nations, Commonwealth and other bodies.

6. A description of the aid programme, including a fuller account of the structure of the bilateral aid programme and how the ODA seeks to ensure that aid is effective is contained in Cm 602 (the Government's Expenditure Plans 1989-90 to 1991-92). A much fuller statement of the Government's policies with regard to ODA's bilateral country programmes is contained in the Government's observations on the Second

1 March 1989]

[Continued

Report from the Foreign Affairs Committee, Session 1986–87, Bilateral Aid: Country Programmes, Cm 225.

7. It follows that all that constitutes scientific and technical aid cannot be separately identified and quantified. Some aid supported activities are exclusively concerned with research and development, the transfer of know-how or the enhancement of capacity within developing countries to harness science and technology for development purposes. Some of the institutions within Britain and internationally supported under the aid programme are primarily concerned with such issues. Each year the ODA prepares a Report on Research and Development, copies of which are placed in the Library of the House. The latest report is for 1986–87 and shows that in total the aid programme spent £29 million on Research and Development Projects. Other bilateral and multilateral aid funded projects and programmes have research and development components, or involve the upgrading and transfer of technologies and the skills required to manage them successfully as part of achieving their wider objectives.

8. The papers annexed to this memorandum indicate the role of science and technology in the main sectors of particular concern to the ODA and most aid donors. For two sectors, Renewable Natural Resources and Health, Nutrition and Population sectors, we have provided fairly full papers. Shorter papers are provided on engineering and the social sciences. Notes are also attached on ODA's support for the Intermediate Technology Development Group whose work is relevant to several sectors, and on help to education and training activities and institutions which have an important role in putting science and technology to use in developing countries. The papers list those specialised British and international institutions supported by the aid programme and provide examples of other relevant projects and programmes funded within Britain's bilateral country programmes and other multilateral aid programmes to which Britain contributes. In addition a list of ODA publications relevant to the Committee's concern is attached; these publications are available in the Library of the House.

ANNEX 1

RENEWABLE NATURAL RESOURCES AND THE ENVIRONMENT

Objectives	1–3
RNR Research for Developing Countries	4–13
Impact of Research	14–15
Expenditure	16–
Natural Resources Division	17–35
British Institutional Capacity	36–47
International Co-operation	48–51
National Agricultural Research Systems	52–55
Technology Transfer	56–61

1. OBJECTIVES

2. The prime objective of natural resources work in ODA is to enhance the productivity and management of renewable natural resources on a sustainable and environmentally sound basis, in support of the overall objectives of the British aid programme namely poverty alleviation and sustainable development. The role of scientific work and technological expertise in this endeavour is crucial.

3. Approach

The main means for achieving these objectives are those of research to generate new knowledge and to combine them into relevant technologies; the transfer and adaptation of technologies to specific situations, and the development and strengthening of institutions to ease the flow of technologies and to provide the necessary infrastructure to sustain the development process.

4. RNR RESEARCH FOR DEVELOPING COUNTRIES

5. Natural resources research is the systematic effort to develop new knowledge or new methods (technology) to increase the productivity and sustainable use of natural resources. It is commonly classified into three types: basic, strategic and adaptive.

6. Basic research aims to generate scientific knowledge. Such knowledge is often critical in fostering advances across a wide range of technological areas.

7. Strategic or applied research follows as a logical process from basic research. It involves the development of new production technologies incorporating innovations based on scientific knowledge.

8. Adaptive research carries forward techniques and technologies developed by basic and strategic research, and seeks to adapt them to the specific conditions of local production systems. This frequently involves the transfer of technology developed in similar situations elsewhere, or new techniques judged

1 March 1989]

[Continued

to be applicable in the local context. This can be the key to ensuring that new technologies address the priority problems of rural households, and are accessible to resource-poor farmers.

9. This division of research typically corresponds with the gestation periods from the conception of research to the implementation of the product in the field. Thus basic, strategic and adaptive research can be expected to yield returns in the long, medium and short term, respectively. The ODA's first objective is to maximise returns on its investments, this may only be secured by basic research in some cases; shorter term research has the attraction of meeting urgent needs more quickly and of a greater certainty of outcome.

10. The ODA tends to leave most basic research to be fostered and justified by the interest of developed countries, who are its main contractors and beneficiaries. However, the ODA needs to maintain an involvement with bio-technology, since there is a chance that developing countries will not benefit if, as is likely, bio-technological developments are oriented to the larger markets of developed countries. The right to patent genetic material will restrict access by developing countries or make its use exorbitantly expensive. Such basic or long term research is a reasonable call on ODA's NR research funding, up to a total say 10–15 per cent, but this will of course require justification on a case-by-case basis.

11. For many problems faced by developing countries, basic information on causes and solutions is not yet available. Strategic research tends to have global or regional application, and is necessarily medium term. It will tend to be based on British research institutions or international centres because they already have the necessary skills and facilities. However, there will still be instances when the conduct of strategic research in one country or by a small group of countries will be justifiable.

12. Adaptive research will of necessity have a firm connection with national research systems in countries receiving UK aid. The more downstream research will be based in developing countries. In addition to the development of improved technologies, outputs will include the training of staff and the strengthening of national research systems. Although the solution of individual problems may be achieved in a relatively short time, the maintenance of the capacity for such work requires a long-term commitment.

13. Research planning in all three categories of research increasingly recognises the requirement to involve a range of scientific disciplines. These will vary according to the type of research being conducted, but the benefits of inter-disciplinary research involving both social and technical sciences are considerable. The conduct of RNR research is no different from other components of the aid programme in this respect, and must consider, the effect on the poorest, gender implications, and environment impact.

14. THE IMPACT OF RESEARCH

15. The ultimate goal of natural resources research is to generate widely adopted technologies which improve productivity and thereby contribute to economic growth. A large number of studies in both developed and developing countries have indicated that the magnitude of this contribution, as measured by the economic returns to investment in research, has been considerable. A World Bank Sector Policy Paper on Agricultural Research Systems published in April 1980 stated that in the 1970s economic returns rarely fell below 20 per cent and frequently exceeded 40 per cent, with 80 per cent recorded in one instance (Report 2966). While there may be methodological problems with such evaluations, it is valid to conclude that, although there may have been a slight levelling-off in the 1980s, investment in well-managed agricultural research generates returns well in excess of the opportunity cost of capital in developing countries, and probably in excess of the returns achievable in many other rural development programmes. Indeed, one disturbing implication of these high returns is that there has been substantial under-investment in agricultural research in developing countries.

16. Total expenditure on RNR research in 1986–87 was as follows:

<i>Natural Resources Division</i>	<i>£m</i>
Commissioned Projects	7.6
Core Funding	
ODNRI	3.3
Other UK Institutions/Research Bodies	1.6
International Research Centres	6.4
Geographical Divisions	
Country research projects	7.7
Total	26.8

17. NATURAL RESOURCES DIVISION (NRD)

18. The technical and scientific aspects of ODA's RNR activities are supervised by its Natural Resources Division which is made up of three groups:

1 March 1989]

[Continued

- the Natural Resources Advisers Group;
- the Natural Resources and Environment Department; and
- the Overseas Development Natural Resources Institute.

19. *Natural Resources Advisers Group (NRAG)*

20. This group comprises of 26 advisers located in ODA Headquarters (16), Development Divisions (8) and in High Commissions (2). The group is co-ordinated by a Deputy Chief Natural Resources Adviser (Development).

21. Natural resources advisers are recruited in mid-career from the disciplines of agriculture, animal health and production, forestry, fisheries, research and environmental science. They are selected on the basis of their technical competence, overseas experience and proven ability to deploy technology in support of the sustainable development and management of renewable natural resources. They are involved at all stages of the project cycle and work with their administrative colleagues and advisers from other disciplines in the identification, preparation, appraisal, staffing, implementation, monitoring and evaluation of development projects and programmes. They play an essential role in maintaining the quality and relevance of ODA's RNR activities. They liaise with UK institutions, their colleagues in other agencies, and with private sector organisations including consultants, industry and non-government organisations (NGOs).

22. NR advisers draw on a wide range of expertise within UK institutions. To augment this standing in-house advisory capacity there are Manpower Centre Schemes with the Centre for Tropical Veterinary Medicine of Edinburgh University, the Institute of Aquaculture of Stirling University, the Oxford Forestry Institute and the International Institute for Environment and Development. There are "Liaison officers" in Plant Pathology at the Commonwealth Agricultural Bureaux International and in Biometrics at Rothamsted Experimental Station.

23. *Natural Resources and Environment Department (NRED)*

24. This department has three main areas of responsibility.

- the commissioning of RNR research at UK, international and national institutions on the customer-contractor or Rothschild principle;
- the development and implementation of policy on environmental issues across all the UK aid programme and for the sustainable management (and exploitation) of renewable natural resources;
- the provision of core support to UK institutions to enable them to carry out work of direct relevance to overseas development.

25. NRED is supported by a small group of research and environment advisers under the leadership of a Deputy Chief Natural Resources Adviser (Research), who also sits on several UK, International and European Commission research committees.

26. To improve the co-ordination and impact of RNR research work commissioned by ODA, NRED have developed a Renewable Natural Resources Research Strategy (RNRRS) which has been submitted to Ministers for their approval.

27. To provide guidance to all ODA departments on the environmental aspects that should be taken into account in aid programme, NRED has developed and field tested an Environmental Manual.

28. *Overseas Development Natural Resources Institute (ODNRI)*

29. The ODNRI is ODA's only in-house Scientific Unit, it is a unique and valuable resource in support of RNR development.

30. It was formed on 1 September 1987 through the amalgamation of the Tropical Development and Research Institute and the Land Resources Development Centre. In addition, a group of natural resource experts from the ODA's Corps of Specialists is now attached to the Institute.

31. The Institute comprises some 450 scientists and administrative staff and is in the process of being relocated from its eight original sites to one campus at Chatham and under one Director. Phase I has been successfully completed and it is expected that the remaining staff will move into the rehabilitated buildings over the next year.

32. The ODNRI has the following mandate: to promote sustainable development of the natural resources sector in developing countries through: assessing of land and water projects; pilot-scale development projects; applied research in the fields of pest control and of crop and animal processing, storage and marketing; and assessment of the environmental consequences of development projects.

33. ODNRI is recognised as a world centre of excellence in these fields. It provides valuable advice to headquarters; library, enquiry and publications services (27 per cent); conducts basic, strategic and applied research (43 per cent); it manages projects and staffs technical co-operation assignments (22 per cent) and

1 March 1989]

[Continued

carries out external contracts for bodies outside ODA eg World Bank, European Commission and UN agencies (7 per cent). Its total annual budget in 1987–88 was £10.8 million of which £5.18 million was commissioned research from NRED and ODA Geographical Department.

34. It is currently the subject of a study to consider its suitability for Agency status and the Government's "Next Steps" initiative, and is preparing a Corporate Plan for implementation later this year.

35. The Natural Resources Division is under the supervision of a Chief Natural Resources Adviser.

36. BRITISH INSTITUTIONAL RESEARCH CAPACITY AND COMPARATIVE ADVANTAGE

37. Historically, the UK has contributed significantly to RNR research overseas, as a consequence of trade, colonisation and emigration. These close linkages exist in both public and private sectors. The UK certainly remains, in comparison with most other countries, a relatively rich source of research capability of relevance to development. Increasing concern is, however, being expressed in both the UK and developing countries at the shrinkage of this resource. Apart from its in-house resources in NRD, ODA makes considerable use of British research councils and universities.

38. Research Councils

39. The Agricultural and Food Research Service (AFRS), which covers the constituent organisations both of the Agricultural and Food Research Council (AFRC) and of the Department of Agriculture and Food for Scotland (DAFS) has revolutionised British agriculture enabling it to become one of the most productive in the world. Traditionally, the institutes of the service have also had long standing professional linkages with similar institutions overseas, particularly in former colonial territories. Much of this collaboration was conducted with a minimum of formality in a spirit of scientific and educational endeavour. Their current rationalisation has led to a concentration of their activities on issues of importance to the UK domestic industry and a reduction in staff with overseas experience. Nevertheless, the AFRS institutes retain a valuable and powerful capacity for basic and strategic research. The current recognition of the importance of environmental issues also makes more relevant the capacity of the Natural Environment Research Council. Potential roles may also exist for the Science and Engineering Research Council and other UK scientific institutions and societies.

40. Universities

41. Similarly, universities in Britain have long-standing links with developing countries and have sponsored and conducted research relevant to developing countries. Their contacts are also maintained by their role in training overseas students and their desire to conduct courses of special relevance to the tropics and developing countries. Their research activities support this general involvement but tend (quite properly) to be too advanced to be related directly to their training activities. Recent proposals to encourage a more commercial orientation in research at universities and to concentrate research funding in a smaller number of universities and departments will affect their capacity to undertake overseas research.

42. In general, NRD looks to the universities and research institutes for research related to the derivation of basic knowledge on natural resources systems and processes. They also provide a base for centres of excellence which are funded by NRED eg:

- (i) The *Centre for Tropical Veterinary Medicine* (CTVM) carries out research into problems of tropical animal health and production. The Centre forms part of the University of Edinburgh but is largely financed by the ODA. In 1987–88 the core grant was £772,600, of which approximately £17,000 was for additional equipment. The CTVM is also carrying out one project financed from ODA's R&D subhead costing £50,900.
- (ii) *Tsetse Research Laboratory, Bristol*. The Laboratory is a centre for research, the breeding of tsetse flies for supply to research programmes all over the world and advice on tsetse problems in general. In 1987–88 its core grant was £292,900 and the laboratory also carried out research financed from ODA's R&D subhead amounting to £116,500.
- (iii) The *Overseas Division of the Agriculture and Food Research Council Institute of Engineering Research* is engaged in R&D on a wide range of machines and systems for agricultural use in developing countries and is wholly financed by the ODA. In 1987–88 the core grant was £346,900. Of this £12,500 was spent specifically on R&D. This R&D expenditure covers not only research projects conducted by Overseas Division but also advisory work and supply of information to overseas organisations carrying out their own research and preliminary studies which may or may not lead to specific research projects.
- (iv) The *Oxford Forestry Institute* (OFI) has a Unit of Tropical Silviculture with a continuous programme of research into biological, silvicultural and economic problems of tropical forestry. It is a permanent source of expert advice on forestry problems in developing countries. Britain's contribution in 1987–88 to maintain this research centre was £170,000. The OFI also carried out research financed from the ODA's R&D subhead amounting to £401,300.

1 March 1989]

[Continued

- (v) *Overseas Development Institute* (ODI) in addition to its research on social and economic issues runs three networks for the exchange and dissemination of information on irrigation management, pastoralism and agricultural research management; with effect from 1 April 1989 ODA will take on the funding of a fourth network on social forestry.
- (vi) The *Agricultural Extension and Rural Development Centre* (AERDC) provides advice and training in extension services and undertakes research in this field. It received a core grant of £39,700 in 1987–88 to cover the costs of a newsletter on agricultural extension.
- (vii) The *International Pesticides Application Research Centre of Imperial College* provides training for practising entomologists in its field use of pesticides application equipment and facilities for the adaption and modification of spraying equipment. It also undertakes research into pesticide application. It received a core grant of £49,600 in 1987–88.

43. *Private Sector*

In developed countries, adaptive research is generally pursued by the private sector. Thus in the UK, private sector research capability resides both in manufacturing companies—especially agro-chemical and agricultural machinery companies—and in companies traditionally associated with the production and utilisation of raw materials. In developing countries, it is difficult to assess what contribution the private sector, which includes British companies, is making but it appears that the interest of the private sector is constrained by the small size of developing countries' markets. There are other commercial considerations including such issues as patent rights. The ODA's approach in the future will continue to be influenced by the interest of client countries and particularly the resource-poor farmers, who have limited access to the products of commercial research. The ODA will continue to encourage the private sector to invest in products and technologies for developing countries markets in which it would otherwise be less interested, by collaborating in research and by disseminating information on the appropriateness of new products.

44. *Implications of British Research Capacity and ability to generate scientific knowledge and technology*

45. The UK's interest in, and capacity to undertake, research of relevance to developing countries is the product of its colonial past. This traditional capacity has also provided the manpower for the implication of the RNR programmes of ODA's Geographical Divisions.

46. The retirement bulge for experts with overseas experience is already seen as a problem for the implementation of aid projects and research. It will be exacerbated by the decisions of the research councils and universities to concentrate on UK orientated research and to maintain activities on developing countries problems only where they can be self-funding. They are unlikely to retain the current broad range of skills and facilities.

47. ODA's response will be to encourage the retention of capability in key areas by concentrating its resources. The managers of research in British institutes will be alerted to the potential for collaboration in priority areas through the distribution of a shortened version of the RNR Research Strategy. These priority areas will also tend to determine, by their effect on the allocation of research staff, the areas of expertise available to the bilateral aid programme in the future.

48. INTERNATIONAL CO-OPERATION

49. The ODA makes an important contribution to international research and development. Many of the problems facing the developing countries are of such complexity and geographical extent as to require the deployment of research resources on an international scale. Through such co-operation the scientific community may often transcend the national frontiers which might otherwise hinder progress.

International Agricultural Research Centres

50. Support for the work of 13 international centres is provided through the Consultative Group on International Agricultural Research (CGIAR); this organisation is sponsored by the World Bank, UNDP and FAO and has a membership consisting of national and international donors, foundations and development banks. Developing countries are represented in the Group by regional nominees. The Consultative Group is guided by the Technical Advisory Committee (TAC) staffed by eminent scientists and with a membership drawn from developed and developing countries. The TAC regularly reviews the scientific and technical aspects of all centre programmes and advises the Consultative Group on the needs, priorities and opportunities for research. It takes account not only of the technical requirements, but also of the economic, social and ecological conditions in which agricultural production actually takes place.

51. Britain contributes through the CGIAR to the work of 12 of the 13 fully sponsored centres. The research programmes of the centres are briefly indicated below. In the main their research is devoted to the major food crops, but work is also performed on problems of animal production and disease, and the development of improved production systems:

1 March 1989]

[Continued

- (i) The *International Rice Research Institute* (IRRI), Philippines, is concerned with research leading to increased rice production in the developing countries. Britain's contribution to the Institute in 1987-88 was £850,000.
- (ii) The *International Maize and Wheat Improvement Centre* (CIMMYT), Mexico, is responsible for research on bread-wheats and durum wheats, barley, triticale and maize. Britain's contribution in 1987-88 was £720,000.
- (iii) The *International Centre for Tropical Agriculture* (CIA), Colombia, is charged with research on field beans, cassava and rice. It also conducts research on beef production, with emphasis on infertile, acid soils of Latin America. Britain's contribution in 1987-88 was £505,000.
- (iv) The *International Institute for Tropical Agriculture* (IITA), Nigeria, is responsible for work on appropriate farming systems for the humid tropics. It has a special responsibility for cowpea, sweet potato, yam and aroids worldwide, and for cassava, maize, rice and sorghum for the African tropics. Britain's contribution in 1987-88 was £445,000.
- (v) The *International Potato Centre* (CIP), Peru, has the main world potato germplasm collection; its research objectives are to increase the yield, stability and efficiency of production of the potato in developing countries. Britain's contribution in 1987-88 was £485,000.
- (vi) The *International Crop Research Institute for the Semi-Arid Tropics* (ICRISAT), India, is the main centre for research leading to the development of improved farming practices for the semi-arid tropics, and for research on associated crops such as sorghum, millet, chickpea, pigeon pea and groundnut. Britain's contribution in 1987-88 was £945,000.
- (vii) The *International Laboratory for Research on Animal Diseases* (ILRAD), Kenya, is concerned with research on problems associated with trypanosomiasis and East Coast Fever, leading to the development of immunological procedures. Britain's contribution in 1987-88 was £660,000.
- (viii) The *International Livestock Centre for Africa* (ILCA), Ethiopia, has a mandate to cover the biological and organisational constraints on improved livestock production in tropical countries south of the Sahara. Britain's contribution in 1987-88 was £295,000.
- (ix) The *International Centre for Agricultural Research in Dry Areas* (ICARDA), Syria, examines farming systems in dry (as distinct from semi dry) areas, along with associated crops such as barley, durum wheat, broad bean, lentil, chickpea and forage crops. Britain's contribution in 1987-88 was £550,000.

52. NATIONAL AGRICULTURAL RESEARCH SYSTEMS (NARS) IN DEVELOPING COUNTRIES

53. The ultimate benefits for UK-funded research will only be realised when natural resource users in developing countries adopt the new technologies derived directly or indirectly from that research. Where this research is primarily UK-based, as is the case with most NRD research, the benefits of any research will only be captured by developing countries if three conditions hold: first, that the output of the research (knowledge or technology) is effectively disseminated to users in developing countries (including intermediate research institutions); second, that there exist adequate indigenous research and extension programmes to receive, adapt, test, and disseminate internally that knowledge or technology; and third, that the resultant technology is accessible to natural resource users in a manner consistent with their objectives, and appropriate for the agro-ecological and socio-economic environment.

54. These are demanding conditions, and it is not surprising that constraints to research impact exist at all stages. The nature of these constraints varies by country and region, and by research topic and target group. As a general rule, constraints in South Asia are much less binding than those in Sub-Saharan Africa. Constraints to research impact in the latter region include inappropriate fiscal and pricing policies, generally unfavourable and unresponsive agro-ecological conditions, inadequate farmer support services (credit, extension, marketing), and the low productivity of the national research institutions. These research institutions are frequently under-resourced; lack incentives, focus and direction; and are often inappropriately organised. The typical result has been a compartmentalised disciplinary structure, conventional commodity-focussed research, and an inadequate understanding of farmer goals and resources. Such a combination cannot generate appropriate technological packages for the majority of natural resource users. National research institutions have often been insufficiently linked to each other or to international centres, and have been inadequately supported by donor programmes. The problems created by the rapid ebb and flow of donor fashions (as has happened with Farming System projects) has already been discussed.

55. Few developing countries have the necessary tertiary education system to undertake sustained research or to train researchers. The exceptions are the larger Asian countries and some in South America. Where a research capacity exists in universities, there is rarely any co-ordination with government-funded research organisations.

56. There are two general implications for RNR research. The first is that it needs to take account of the likelihood of real impact in its selection of priorities, given these constraints. The second is that, in the longer term, its effectiveness is in large measure dependent on action through country programmes

1 March 1989]

[Continued

to address these constraints direct. Support for structural adjustment programmes, for example, will increase the impact of both ODA and private sector research where it results in more freely functioning markets and an improved economic climate for agricultural investment. Support for research institutions and for training are also priorities, if the objectives of country programmes include the development of the agriculture sector.

56. TECHNOLOGY TRANSFER AND INSTITUTION STRENGTHENING

57. UK is relatively speaking, technology rich; a product of its institutional strengths and economic growth. The technology poverty of many developing countries suggests the attractive logic of stimulating development through technology transfer; however the direct transfer of technology can be a risky and disappointing business. Often it is necessary to modify or adapt technologies before they will work under the different social, ecological, political and economic conditions that occur in developing countries.

58. The essential pre-requisite in the transfer of technology from developed countries or even from the national research institutions to the farmers is the means to test, adapt and release the technology and the resources needed to facilitate the process.

59. Central to the process of technology transfer is access to information through education (human resource development); information exchange in journals, conferences, meetings, etc.; and commerce. The British aid programme is able to facilitate this process through its Technical Co-operation and Training Award programmes, the provision of technical assistance, and the sponsoring of networks and links between research and development institutions in the UK and overseas. Examples of these are the networks on irrigation management, research management, pastoralism and social forestry that NRD sponsors at ODI. The India Desk of ODA is through the British Council, fostering links arrangements between Indian and UK research institutions.

60. The most important and often neglected link in the chain of information and technology flow is the final one with the farmer, forester or fisherman which is normally covered either by the trader or a Government run extension service. ODA currently supports the training of extension workers at the AERDC of Reading University and at other centres within UK as well as supporting the development of rural extension and advisory services in many countries. ODA also funds the development of agricultural education and training centres in many parts of the world eg the Njala College of Agriculture in Sierra Leone.

61. Aid can therefore play a part in stimulating and oiling the development and flow of technology at all stages from its genesis to its adoption. The role of RNR development is to identify the problems and the bottlenecks and then to design projects and programmes of support that can bring about durable solutions and sustainable development.

ANNEX 2

HEALTH, POPULATION AND NUTRITION

Objectives and Background	1-4
ODA Support for Science and Technology in the Health, Nutrition and Population Sector	5-6
Health, Nutrition and Population Sectoral R&D	7-12
Expertise available to ODA	13-14
Support for International Health, Population and Nutrition Centres and Programmes	15-18
Support for Bilateral R&D Activities	19
Some Selected Overviews	20
Policy and Priority Setting	21-26
Aids	27-30
Mother and Child Health	31-34
Population	35-39
Tropical diseases	40-44
Management and Financing Issues	45-49

A. OBJECTIVES AND BACKGROUND

1. Support for all health, nutrition and population activities from the Overseas Aid Programme is designed to help improve health status in developing countries and particularly that of the poorest people in the poorest countries; often but not always, the rural poor.

2. In many developing countries life expectancy for women is below 50 years. In those countries, infant mortality is in excess of 100 per 1,000 live births. In addition, many adults and children suffer from chronic

1 March 1989]

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debilitating disease. Chronic illness leads not only to early mortality but also to reduced working time and low productivity. The patterns of fertility and mortality in developing countries means that as many as half of all deaths occur among children under five years of age.

3. Most health problems in developing countries stem from poor environmental conditions; lack of health care and knowledge; malnutrition; infectious diseases (including diarrhoeal disease, respiratory illnesses, measles, tetanus and tuberculosis) and parasitic diseases. A great deal is known about the causes of these problems. However, progress towards an acceptable minimum standard of health has been slow in much of the developing world because of extreme poverty; a greater investment in the treatment of disease than its prevention; the prevalence of communicable diseases; and rapid population growth rates.

4. Health standards, particularly those in developing countries are determined by government policies as a whole rather than by the somewhat limited range of services administered by Ministries of Health. This memorandum deals only with ODA's work on the direct influences on health such as nutrition and prevention from infection and on one vital indirect influence—the control of fertility. It is important to recognise that work in education, agriculture; economic; and social (eg status of women) sectors has an important indirect effect on mortality and morbidity.

B. ODA SUPPORT FOR SCIENCE AND TECHNOLOGY IN THE HEALTH, NUTRITION AND POPULATION SECTOR

5. The broad objectives of ODA support are:

- (i) to help understand the determinants of health in developing countries and to use this knowledge to establish priorities in health and population activities;
- (ii) to help develop new, affordable technologies to improve health status in these countries; and
- (iii) to improve the delivery and effectiveness of existing technologies in the developing world.

6. The means used to meet these objectives are:

- (i) support for sectoral research and development (R&D) work from the research and development subhead of the Overseas Aid Vote;
- (ii) the funding of specialist UK academic centres with particular strengths in priority areas;
- (iii) contributions to a number of international programmes and centres which undertake research on the health and population problems of developing countries; and
- (iv) support for bilateral R&D in the context of individual bilateral country assistance programmes.

In each, priority is given to programmes to promote and sustain primary health care activities and within these programmes to help improve the health of mothers and children. Many of the problems associated with improving health status are of an applied type. Operational research is therefore encouraged and programmes and projects are expected to yield practical results, which have wider value, in a reasonable period of time.

I. Health, Nutrition and Population Sectoral R&D

7. Under this programme support is given to specific research projects and programmes undertaken by individuals or research teams with an appropriate institutional base (usually an academic/research institute but not necessarily so). In order to qualify for funding, the scope of the proposed research must be of global or regional significance. In 1987–88 £2.116 million was spent in this way. Levels of funding have increased over the past few years as Table I below illustrates. This programme, for which ODA's Health and Population Division is responsible, supports research in four main areas; biomedicine; health services research; nutrition; and population.

Table I Health, Nutrition and Population Sectoral R&D

	£'000		
	1985–86	1986–87	1987–88
MRC Funded			
Research	1,650	1,560	1,790
Other	314	308	326
Total	1,964	1,868	2,116

8. Funds for biomedical research are administered on ODA's behalf by the Medical Research Council (MRC) on the advice of its Tropical Medicine Research Board (TMRB). This is a joint MRC/ODA Board. (Five of its members are nominated by the Minister for Overseas Development.) Applications for support are considered by external referees before the Board makes its decision on the basis of the scientific merit of the proposal. The research is concerned mainly with work on the main vector borne and parasitic diseases

*1 March 1989]**[Continued]*

such as malaria; filariasis including onchocerciasis, schistosomiasis; and leishmaniasis, leprosy and sickle cell disease. It is often basic research. In recent years the Board has tried to encourage applied research particularly in the fields of nutrition and epidemiology. The AIDS research it is currently supporting has led it into the fields of social and behavioural research. ODA's contribution to the Board's work—£1.79 million in 1978–88—is used to fund a proportion of the cost of research projects and programmes on a co-financing basis, varying from 25 per cent to 100 per cent depending on the relevance of the research to ODA assistance priorities.

9. There are five areas of research activity administered by the MRC to which ODA contributes:

- (i) overseas units in The Gambia, Jamaica and Sierra Leone—ODA provides between 33 per cent and 100 per cent of recurrent costs requirements for these Units.
- (ii) External Scientific Staff (ESS)—ODA supports 50 per cent of the costs of three ESS and 30 per cent of one other ESS.
- (iii) Five year programme grants—ODA supports 50 per cent of the cost of four programme grants.
- (iv) Special Programme Grants to support research into a priority area identified by the TMRB—ODA provides 30 per cent of the cost of the work of the Epidemiology Unit at the London School of Hygiene and Tropical Medicine.
- (v) Project Grants, usually of a three year duration—at the start of 1989 ODA was supporting some 28 projects. Sixteen of these received 50 per cent or more in funding from ODA.

10. The MRC is responsible for evaluating the work it funds. It has recently set up a new Sub-Committee to develop the Council's strategy by determining issues such as priorities and assessment criteria and to provide a mechanism for examining priorities and allocating resources across its portfolio. The TMRB is developing its own input to this Sub-Committee's work.

11. The health services, population and nutrition research is administered directly by Health and Population Division on a project by project basis. Proposals submitted for funding are appraised by in-house advisers and referred to external assessors.

12. The ODA has also recently embarked on an evaluation of the health, population and nutrition research it has funded, relating it to the practical needs of developing countries and to its own primary health care policy. The final objective of the evaluation will be to develop an ODA research strategy for health, population and nutrition. This will need to be co-ordinated with the MRC's work. We expect the evaluation to be completed during the course of this year.

II. Expertise Available to ODA

13. Within ODA there are seven (six full time and one part time) professional advisers in the health, population and nutrition fields. In addition we are able to draw on capacity, specially financed by the aid programme within selected British institutions (see below). These arrangements support the capacity to undertake, assess and disseminate relevant research in the health, nutrition and population fields.

14. Under the Technical Co-operation Medical Lectureship Scheme ODA currently pays the salaries of 23 Lecturers and Senior Lecturers at the Liverpool and London Schools of Tropical Medicine and at the Universities of London and Edinburgh. In addition, we have provided a wide range of core support to create institutional capacity in particular fields—ODA was instrumental in funding the establishment of both the Centre for Population Studies and the Evaluation and Planning Centre at the London School of Hygiene and Tropical Medicine and in upgrading facilities to enable more or different work to be undertaken—ODA helped establish the Tropical Child Health Unit at the Institute of Child Health; and expanded the Department of Tropical Paediatrics at the Liverpool School and the Institute of Population Studies at the University of Exeter. We currently provide budget support for the Centre for Population Studies, the Evaluation and Planning Centre, the Bureau of Hygiene and Tropical Diseases, and the Nutrition Policy Unit at the London School. Increasingly, these funds are being provided on a project-specific basis to help ensure that they are utilised in support of ODA's health and population priorities. Institutional support of this type totalling £1.9 million in 1987–88.

III. Support for International Health, Population and Nutrition Centres and Programmes

15. ODA contributes to a number of international research initiatives and also to a variety of programmes where research is combined with a programme of service delivery—the World Health Organisation's Onchocerciasis Control Programme; the Diarrhoeal Disease Control Programme; the Acute Respiratory Infection Programme and the Global Programme on AIDS and support for CAREC and the International Centre for Diarrhoeal Disease Research in Bangladesh fall into this latter category. The World Health Organisation's Programmes for Research and Training in Tropical Diseases (WHO/TDR) and in Human Reproduction (WHO/HRP) are two international goal-oriented research and training programmes. They are in fields where the scale and nature of the problems to be tackled; the need for a multidisciplinary approach; and the desirability of involving scientists from developing and developed countries make an international, co-ordinated research effort more likely to succeed.

1 March 1989]

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16. WHO/TDR's objectives are to obtain new and improve existing tools for the control of major tropical diseases and to strengthen the research capabilities of tropical countries. WHO/HRP's objectives are similarly structured around a central aim to develop new methods of birth control and improve the safety, efficacy, acceptability and delivery of existing methods for developing countries. Research in both Programmes is conducted globally by multi-disciplinary scientific working groups. WHO/TDR focuses on six diseases: malaria; schistosomiasis; leishmaniasis; filariasis; trypanosomiasis and leprosy. Scientific Working Groups are also active in the biological control of vectors; epidemiology and social and economic research.

17. WHO/HRP's Working Groups (called Task Forces) cover male methods of contraception; long-acting hormonal methods; diagnosis and treatment of infertility; natural family planning methods; behavioural and social research and safety and efficacy issues.

18. Usable products and technologies are now emerging from both research programmes. WHO/TDR has helped develop and/or test potential vaccines against malaria and leprosy; and new drugs such as the anti-malarial mefloquine and ivermectin to combat onchocerciasis. WHO/HRP is conducting post Phase III testing work on NORPLANT, a sub-dermal contraceptive device and has produced a contraceptive hormone releasing vaginal ring and helped to develop and test the first contraceptive vaccine. UK scientists, often from units supported by ODA, are well represented on these Programmes' Scientific Working Groups and amongst the groups receiving support for specific areas of work. Support for international research programmes and international programmes with a high research content has steadily increased over the past few years—see Table II below.

Table II ODA Contributions to International Health, Population and Nutrition Research Programmes

	£'m					
	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
WHO Acute Respiratory Infections (ARI)	—	—	—	—	0.500	0.150
WHO Drug Action Programme (DAP)	—	0.200	0.210	0.300	0.450	—
WHO Diarrhoeal Disease Control (CDD)	—	—	—	0.200	0.350	0.370
WHO Tropical Disease Research (TDR)	0.212	0.224	0.236	0.700*	0.650	—
WHO Onchocerciasis Control Programme	0.600	0.600	0.650	0.650	0.750	—
WHO Cold Chain	0.450	0.060	0.064	0.064	0.064	—
CAREC	0.064	0.072	0.075	0.078	0.075	—
ICDDR.B	0.124	0.131	0.138	0.143	0.150	—
WHO Global Programme on AIDS	—	—	0.250	3.000	4.500	—
WHO Human Reproduction Programme (HRP)	1.800	2.000	2.400	2.200	2.200	—
IPPF AIDS Unit	—	—	—	—	0.300	0.650

*Including 0.200 million for Ivermectin.

IV. Support for Bilateral R&D Activities

19. ODA supports country-specific research in the context of its programmes of bilateral technical assistance to individual countries. This R&D may form part of a larger development project, for example a child spacing study carried out as part of ODA's support to the Southern Regions Health Project in Tanzania. Or comprise a discrete activity like the collaborative research on viral hepatitis between the London School of Hygiene and Tropical Medicine, the Institute of Post Graduate Medical Sciences, Madras; the Haffkine Institute, Bombay; and the All India Institute of Medical Sciences. Under this Programme five Indian Scientists have been trained in the UK and three Indian institutions strengthened. This type of research is funded and administered by ODA's Geographical Departments with professional input from in-house health and population advisers.

C. SOME SELECTED OVERVIEWS

20. These four mechanisms to support R&D in the health, nutrition and population sectors are administered separately. In practice, specific problems are rarely tackled through one mechanism. There is good collaboration between multilateral and bilateral work. How these activities fit together is best illustrated by specific examples. The following brief overviews of six sub-sectors give a flavour of the inter-relationship between the various forms of support used.

Policy and Priority Setting

21. The Report of the International Conference at Alma Ata, which set out the guidelines to achieve "Health for all by the Year 2000" was a major step forward in the development of international health policy. But it was only a step. The comprehensive primary health care agenda it set out covered all the major developments needed for health under more or less ideal conditions. However, most developing countries cannot afford this agenda and Alma Ata did not try to advise on the order in which the developments

*1 March 1989]**[Continued]*

should be promoted where conditions are not ideal. In order to do this good information is needed on the influences on health, including fertility and the scale and scope of mortality and morbidity. This health data is not readily available in most developing countries.

22. ODA has helped improve work in this area by supporting a broad-based package of activities. We have funded the collection and analysis of demographic data, which is necessary for economic and social development planning, under both our multilateral support for the United Nations Fund for Population Activities and a number of bilateral assistance programmes. We have also encouraged, through core support for the Centre for Population Studies and support for individual research projects, the development of "indirect demographic techniques", which are designed to ensure that more reliable demographic findings are gained from analyses of the lower quality data often available from censuses. With ODA support, CPS developed the sibling survivorship method used to estimate adult mortality and with further research support refined this into the "sisterhood" method to be used for estimating maternal mortality. (This is an important, under-reported and much neglected field.) We were also a major donor to the World Fertility Survey (under our support for international research programmes). This was the largest social science survey ever undertaken and provided reliable information on fertility and fertility-related behaviour. It also increased national capabilities to plan, implement and utilise social survey data. It is being built on in a new round of demographic and health surveys, which will also collect information on maternal and child health.

23. ODA is also funding work to look at emerging new issues. Infant and child mortality has rightly been a priority for the past decade. However, we know relatively little about adult mortality and morbidity and this has an important influence on how developing countries allocate their health budgets. In order to find out more, ODA has joined with the World Bank in sponsoring a workshop on Adult Mortality which will help chart a research agenda for adult health. We have ensured that developing country policy makers are invited to the meeting.

24. In 1983, there were 26 cities in the world with populations over 5 million with a combined population of 252 million. It has been estimated that by the year 2000 there are likely to be 60 such cities with a combined population of 650 million; 45 of them will be in the developing world. Several of the largest, Mexico City, Sao Paulo and Calcutta will have over 20 million people. The health of urban poor will become a crucial issue in improving health status. ODA is supporting a number of integrated slum improvement projects in India under its Indian bilateral assistance programme. Under our R&D programme we are funding a comparative study of the different methods used in these programmes to meet similar health objectives. The results will have direct and immediate relevance to the design of new and the improvement of existing programmes.

25. The need to develop epidemiological and social science tools to help in the design and implementation of health and population programmes is a relatively new concept. The Head of the London School's Epidemiology Unit, which is funded by MRC and ODA, has recently spent a year working with the WHO Tropical Disease Research Programme to improve its epidemiology research programme. ODA has also paid for a British social scientist to be seconded to the WHO Global Programme on AIDS to help strengthen its social science research base and we have made a similar offer to the MRC-funded Unit in the Gambia.

26. We have developed important collaborative research with NGOs. A sectoral R&D project with the London School looked at the relationship between rainfall patterns in the Sahel and the incidence of risk of infection and illness. The findings were provided to the Save the Children Fund team operating in the region and the Fund, with the Government, immediately mounted a five-year immunization programme. Other important work with refugees has also been funded. A research project has examined the management of food relief in emergencies. The project pools the experience of agencies operating in this important area to produce a guide for targetting methods for use by relief agencies in the future. A comparative study is currently being funded in Pakistan and Somalia to look at the development of refugee and national health policies by host governments. When it is completed, it is hoped the findings will highlight the impact of refugees on national health planning and specifically the development of those plans for refugees. The conclusions should help clarify the role of external support in improving refugee health and thereby improve the appropriateness and effectiveness of health aid, both bilateral and multilateral.

AIDS

27. The WHO's Global Programme on AIDS (WHO/GPA) has so far given priority to helping developing countries establish and strengthen national AIDS control programmes. Attention is now being given to developing a research agenda which will underpin the design, implementation and evaluation of national programmes and the policies and strategies against which those programmes are formulated. Research priorities will be determined by Steering Committees which in 1989 will consider behavioural and biomedical research together with evaluation methods. The research programmes will be carried forward by the GPA's Scientific and Technical Units which in 1988 were allocated 11 per cent of the total GPA budget of US\$60 million.

28. One of the first national AIDS control programmes to be launched in collaboration with the GPA was in Uganda. In support of the Ugandan national effort, ODA is contributing £1.13 million (bilaterally

*1 March 1989]**[Continued*

through the WHO) over five years towards the rehabilitation of the Uganda Virus Research Institute. The Institute has a key role in monitoring and understanding HIV prevalence in Uganda and will also be the base for a major research programme funded through the MRC Tropical Medicine Research Board aimed at clarifying aspects of heterosexual transmission of HIV.

29. ODA is also supporting a programme of research into the socio-economic aspects of AIDS, developed in consultation with the GPA. One study is investigating the future demographic and economic impact of the disease. Others will contribute to a better understanding of the social context which affects the transmission of the virus and the way communities cope with the consequences. The knowledge gained from all this work will help to design more effective programmes to prevent the disease and support those affected by it.

30. Training is an important component of this research and provision has been made under our Technical Co-operation Training Programme for social scientists from developing countries to undertake field work leading to PhDs, under supervision of the UK research institutions. ODA has also commissioned an NGO to carry out a survey of AIDS-related training opportunities in the UK relevant for overseas health personnel. This should help ODA optimise its response to the training needs of national AIDS control programmes.

Mother and Child Health

31. Reduction of infant and child mortality and morbidity is a primary aim in the implementation of primary health care programmes and projects. In order to design better projects we need to know more about the determinants and consequences of child mortality and morbidity. There are, however, very few long-term follow-up studies of young children from developing countries, because it is difficult to identify a population-based cohort of children at birth and to successfully follow a large proportion of them through childhood. These studies are however greatly needed to provide valuable information on infant and childhood mortality, morbidity, growth and health care utilisation, which cannot be properly obtained from other surveys. ODA is funding a major longitudinal study of young children in Southern Brazil. A cohort of 6,011 urban children born in hospital in 1982 in the city of Pelotas is being followed up. It is hoped that the research finding will help to sharpen the development of health care policies and priorities in the developing world.

32. Preventive health programmes are clearly an important part of improving the health status of children. They are usually cost-effective and put some control into the hands of communities, families and mothers. Core support from ODA enabled the Tropical Child Health Unit at the Institute of Child Health to develop the growth monitoring technique to help mothers chart their children's development. This technique has been taken up by WHO and UNICEF and is widely used in mother and child health programmes. We also provided some initial start up funds for the Unit's Child-to-Child Programme, designed to encourage children to teach each other good hygiene and health habits.

33. Another important and new research project in this field is the funding of a controlled trial of the effects of Vitamin A supplementation on child survival. Clinical and laboratory studies in Indonesia have suggested that Vitamin A deficiency may increase the risk and severity of diarrhoeal disease and acute respiratory tract infection. The Indonesian studies have provoked interest in developing countries, among both policy makers and researchers and the WHO Expanded Programme on Immunisation is currently considering the introduction of periodic Vitamin A supplementation into its activities. The need now is for a fullscale trial to establish whether or not periodic large doses of Vitamin A substantially improve the survival of young children. ODA is funding such a project with the Department of Community Health at the University of Science and Technology in Kumasi, Ghana and the Evaluation and Planning Centre at the London School. The project will run for three and a half years and will involve a double-blind placebo control trial. About 14,000 children aged 6–59 months will be enrolled into the trial at a baseline survey and will be followed up for a period of two years. A number of multilateral programmes are particularly interested in the results of this research and the London School is discussing with the WHO Diarrhoeal Disease Control Programme how it might add to the study to provide more detailed information on the relationship between Vitamin A deficiency and diarrhoeal disease.

34. In developing countries most children die from diarrhoeal disease; acute respiratory infections; and vaccine-preventable diseases and malaria. ODA is a contributor to international programmes to help tackle all these problems. As well as working with the WHO Diarrhoeal Disease Control Programme, we have been a long-term supporter of the International Centre for Diarrhoeal Disease Research (ICDDR,B) in Bangladesh. This Centre pioneered the development of Oral Rehydration Therapy, which now saves millions of lives and is also working on new vaccines and diagnostic tests and studies to improve the understanding and epidemiology of acute and persistent diarrhoea. We have also funded British scientists working on the development of the "Cold Chain", which is necessary to keep vaccines chilled from the time they leave the factory to the moment they are administered.

*1 March 1989]**[Continued]**Population*

35. Although rates of population increase are very different in different parts of the world, high population growth rates are likely to present a major problem for poor countries in the future. Economic and social progress helps slow population growth but rapid population growth hampers economic development. There is therefore a need to improve our understanding of the consequences for development of faster or slower population growth; understand and implement strategies which build demand for smaller families such as improving women's opportunities in education and income generation; providing and improving access to safe, effective and affordable family planning services; and improving project design including the development of tools to evaluate the impact of population programmes. ODA has supported research in all these areas.

36. Under both our R&D programme and our programme of core support to UK institutions, we have supported the development of a computer-assisted population training package called POPTRAN produced by the Cardiff University Population Centre. These programmes are designed to help population planners, policy makers, administrators and managers formulate and implement better policies and projects by helping them understand population dynamics. This is done by changing assumptions on future fertility and life expectancy and seeing how this affects the size and structure of a population. The programmes are easily used by non-demographers and are now widely used in training programmes at the Centre and overseas.

37. We are currently awaiting government approval for a project to be implemented by the Population and Community Development Association, the largest NGO in Thailand, to establish a village-level infrastructure providing community incentives to take up family planning. The programme will establish Village Revolving Loan Funds (with Managing Committees) and Mothers' Clubs in six Muslim villages and assess the effect these have on family planning acceptance.

38. Our major support to improving the safety and efficacy of family planning methods in developing countries is our contribution to the WHO Human Reproduction programme, to which we have consistently been a major contributor. (See Table II—paragraph 18). ODA has, however funded some important research work to develop contraceptive support and information materials for illiterate and semi-literate people. Through the Programme for the Introduction and Adaptation of Contraceptive Technology we have helped to produce printed materials for African and Asian audiences to explain how contraceptive methods work and how to use them. The research has contributed to the capabilities of the countries involved where pamphlets, booklets and flipcharts for users and service providers have been produced and evaluated and the materials and methodologies have been disseminated to other countries.

39. In the area of programme design and evaluation, we have concentrated on understanding how community participation in family planning programmes can be fostered and improved. Many organisations have recently come to recognise the limitations of the "top-down" clinic-based approach to providing family planning services and have experimented with different ways of directly involving the community in the planning and management of its own family planning services. Through a research arrangement with the Institute of Population Studies at the University of Exeter and the International Planned Parenthood Federation, a comparative analysis of three community participation family planning projects is being undertaken to enable some predictive guidelines to be assembled for use by Family Planning Associations who wish to design and implement community participation projects.

Tropical Diseases

40. The major tropical diseases affecting developing countries are malaria; schistosomiasis; filariasis (including onchocerciasis); trypanosomiasis (including African sleeping sickness and the American form Chagas disease); the leishmanias; and leprosy. ODA support for work on these diseases is concentrated in its support for the WHO Tropical Disease Research Programme—see paragraphs 15 and 16 above; its support for biomedical research undertaken by the Tropical Medicine Research Board of the MRC; and selected bilateral research projects and programmes.

41. Malaria is still the most important parasitic disease in the tropics. The tools and methods available for malaria control have not (with the exception of the new anti-malarial drug, mefloquine) increased significantly in number over the past three decades and have even declined in efficacy. WHO is funding work, to which ODA contributes, on the chemotherapy of malaria—to find new inexpensive, safe, long-acting and effective drugs; the immunology of malaria—to develop a vaccine and improve immuno-diagnostic methods; and on the best use of existing tools to control malaria. The TMRB is funding, with ODA support, work on the immunology of malaria and is planning a meeting to review research in this field later this year. It is hoped that this will lead to some new priorities for research. At the MRC Unit in the Gambia, 33 per cent funded by ODA, some promising results are emerging from two preliminary studies on the impregnation of bed nets with the insecticide Pyrethrum and new village level methods of malaria control. Under the Indian bilateral assistance programme, we have funded a number of important India/UK workshops on malaria, in which UK participation has been provided by many of the experts supported under our programme of work with the MRC.

*1 March 1989]**[Continued*

42. About 1.4 billion people—nearly a third of the world's population—live in leprosy-endemic areas, mostly Asia and Africa, and more than a third of the estimated 10.6 million leprosy patients in the world face the threat of permanent, progressive physical disability, often with social rejection. A major problem in leprosy treatment has been the growing resistance of the bacterium which causes the disease to Dapson, the only cheap, safe and effective anti-leprosy drug and one that has been used widely for almost 40 years. The WHO's Tropical Disease Research Programme has been instrumental in devising a new multi-drug therapy which combines three drugs. This therapy has been field tested in many countries. Wherever it has been put into effect there has been a dramatic drop in the case load. In addition to work on chemotherapy, work continues to develop a vaccine to protect against leprosy. Again the WHO Tropical Disease Research programme is active in the field. Two vaccines are being field-tested and scientists from the Medical Research Council's National Institute for Medical Research are involved in these programmes. In addition, under the Indian bilateral assistance programme, leprosy research is being supported at the Jalma Leprosy Research Centre into the solution of problems associated with the management and control of leprosy.

43. Filariasis comprises several diseases. Onchocerciasis, or "river blindness" which is transmitted by black flies is probably the most serious of the filarial diseases. It affects about 40 million people, mainly in tropical Africa, but also in Central and South America, and foci in the Eastern Mediterranean region extend to Yemen and the Sudan. Onchocerciasis is characterised by intense itching and ultimately, in many cases, blindness. The main problem in the control and treatment of filarial infections has been the lack of a completely safe, effective compound that could be used, preferably in a single dose, both for onchocerciasis and other filarial diseases.

44. In the absence of a drug the Onchocerciasis Control Programme has undertaken a major programme of larviciding in Benin, Burkina Faso, Ghana, Ivory Coast, Mali, Niger, Sierra Leone, Guinea, Guinea Bissau and Togo. However, a new drug to treat the disease has emerged in the past few years. Ivermectin, has been developed by Merck, Sharpe and Dohme, a US pharmaceutical company. The WHO Tropical Disease Research Programme has worked closely with the company to conduct clinical trials of the drug. The results are promising and it appears that Ivermectin may be a major public health tool. ODA has supported work on Ivermectin through its regular contributions to the WHO Tropical Disease Research Programme. However, in 1987–88 we provided an additional £200,000 to WHO/TDR to help accelerate its work on clinical trials. In addition we are supporting a substantial amount of work on onchocerciasis at the MRC unit at Bo in Sierra Leone (ODA pays 100 per cent of the recurrent costs of this Centre). Bo is investigating the parasitological, clinical, immunological and entomological aspects of onchocerciasis. Its work is done in collaboration with overseas institutes and organisations—notably, the Department of Pathology, Cambridge; the London School of Hygiene and Tropical Medicine; the Liverpool School of Tropical Medicine and the WHO's Tropical Disease Research Programme and Onchocerciasis Control Programme.

Management and Financing Issues

45. WHO has estimated that the achievement of its goal of "Health for All by the Year 2000" would require a threefold increase in public spending on health in the developing world. This is unlikely to be achieved. Developing country governments are therefore looking at two options; to ensure that existing services are efficiently delivered and are realistic and within the realm of financial feasibility; and to explore ways of shifting more of the burden of financing health care from the public sector to the beneficiaries—families. ODA is helping in this by funding work to look at the efficiency of primary health care facilities; to improve health planning and management; and to look at alternative ways of providing health care services.

46. Together with the Evaluation and Planning Centre of the London School, ODA has developed a research proposal to look at the efficiency of primary health care facilities in Africa. This is an applied research study which will assess the costs of providing primary level facilities, the factors influencing these costs and will make an assessment of the quality of the care provided, viewed both from the professional's and the community's perspective. In this way, the links between costs, quality and efficiency will be examined. The ultimate aim of the study is to produce simplified monitoring and evaluation procedures for use by district health managers in assessing facility performance and to enable them to make the most efficient use of their limited financial and other resources.

47. A major impediment to improving health care services in developing countries, particularly at the regional and district level, is poor management. Health services managers are a diverse group: they can include doctors, nurses, paramedics as well as health administrators. Management training for developing country middle-level health managers is a relatively new field. The Department of International Community Health at the Liverpool School has been taking a lead in the sector and last year it set up a group to develop effective training courses and appropriate management systems for developing countries. ODA helped with this enterprise.

48. We are also funding a study concerned with the changing role of nursing management in relation to primary health care. To meet the needs of new primary health care systems it is envisaged that more nurses will move from hospitals to the everyday life of the community; that they will become more active

*1 March 1989]**[Continued]*

in health education; that their leaders will increasingly innovate and participate in inter-professional and inter-sectoral teams for health development; and that they will become managers of primary health care teams, supervising non-professional community health workers and monitoring health service activities. There is some evidence to suggest that in some countries programmes preparing nurse managers are not directly relevant to the main social and health needs of the country and that the emphasis continues to be on a curative model, focussing on the hospital setting. There is therefore a need to identify the competence required of nurse managers at all levels within a primary health care system. We are funding a study, to be carried out by the Institute of Child Health, to investigate the actual and potential work of nurse managers in developing countries. The objective will be to gain a realistic picture of the range of management responsibilities and functions of nurses at the peripheral, intermediate and national, levels and to provide information which will assist in manpower policy formulation.

49. For many developing countries, non-governmental organisations (ngos) have played a major role in activities related to health and population. These ngos display a wide range of both organisational characteristics and activities. In recent years there has been increasing interest about the role of ngos and more precisely their relationship with the government sector, but little research has been carried out on the role of ngos within the health sector. ODA is working with the Nuffield Institute for Health Services Studies to develop a research proposal which will look at the role of ngos in the promotion of primary health care in developing countries. The first phase of the research will help develop evaluative tools and criteria that can be applied to assess the current impact of the ngo sector in individual countries; and secondly the development of a variety of policy options for governments towards the ngo sector and its components. The second stage of the research, concerned with policy options, will address the issue of how to maximise any comparative advantage arising from the characteristics of ngos, taking a clear account of the implementability and undesirable side-effects of different policy options. The Nuffield Institute will work with groups of national and international ngos. They will have discussions with bilateral and multilateral aid agencies and undertake a case study in two countries. It is hoped that the research will lead to the development, assessment of and implementation of policies towards ngos within the health and population sector and possibly to an international workshop to discuss the research findings.

ANNEX 3

ENGINEERING

Objectives

1. Good engineering is an essential prerequisite for the success of a very large part of the British overseas aid programme. Projects that contribute to the physical infrastructure of a developing country, such as transport, energy, communications and water supply are obviously heavily dependent on engineering for their planning, design and implementation, but many projects in other sectors often also require a high engineering or building content.

2. Within the ODA, responsibility for advice on engineering topics rests with a group of 24 advisers, half of whom are stationed in overseas posts. This group is led by the Chief Engineering Adviser, and is mainly composed of senior chartered engineers with significant experience of overseas conditions. Because of the nature of their work, the majority of these professionals are drawn from the field of Civil Engineering. The overall composition is:

Civil Engineers	17
Architects/Physical Planners	2
Industrial Training	2
Electrical and Mechanical (Power)	1
Mining	1
Renewable Energy	1

This group draws heavily upon advice from other government departments, specialist institutions, and in particular from the very strong British consulting engineering profession, which has comprehensive knowledge of engineering conditions and requirements within the developing world.

3. The aim of ODA's research is to improve the quality and appropriateness of the engineering that is applied to a very wide range of development activities. The need is for applied research, undertaken by scientists and engineers who have a clear understanding of the developmental needs of the countries that are recipients of British aid.

4. ODA's engineering research effort covers the designing and building of new infrastructure, and also the need to devise better ways of maintaining and operating existing infrastructure. In some branches of engineering a straight transfer of technology from industrialised countries to developing countries is possible, but in many instances subtle and sympathetic adaptations of technology are necessary in order to meet the needs. In areas of engineering that are strongly conditioned by the physical, economic, and social

1 March 1989]

[Continued

environment in which they are applied, the possibilities of adapting technology from industrialised countries is limited; in these subject areas it is necessary to develop special methods and expertise that directly reflect the particular needs of developing countries. It is these subject areas that take priority in the allocation of ODA's engineering research and development resources. They can be grouped under five main headings:

- (1) Evaluation and Use of Water Resources, including Sanitation.
- (2) Provision and Operation of Transport.
- (3) New and Renewable Energy.
- (4) Geological Survey, Natural Hazard Prediction and Mineral Development.
- (5) Building and Construction.

In all these subjects Britain is endowed with research expertise, in research institutes and other organisations, many of which have wide experience of developing countries.

Implementation of the Programme

5. The bulk of engineering R&D has traditionally been undertaken by government scientific units. These are listed below, noting their parent organisations and the level of funding being made available in 1988-89 from within the overseas aid programme.

6. Hydraulics Research Ltd (formerly the Hydraulics Research Station of the Department of the Environment)	£1,179,000
Institute of Geological Sciences, now British Geological Survey (National Environmental Research Council)	£1,255,000
Institute of Hydrology (NERC)	£238,000
Transport and Road Research Laboratory (Department of Transport)	£2,256,000

7. The work programmes of these units are cleared by annual Management Committee/Commissioning meetings following the circulation of detailed project proposals. Such proposals include full details of project objectives, staff and other inputs.

8. Additional self-contained research projects are commissioned from universities and other organisations. This work in some cases complements that of the Units and in other cases extends into new areas. It can be grouped, under the broad headings of Water and Sanitation; Transportation; Renewable Energy; Buildings and Construction.

Water and Sanitation, including Irrigation

The topics covered are water purification techniques, physical and chemical; wastewater purification; low-cost sewerage systems and handpump development. In general the overall aim is to find and demonstrate reliable, safe and cheap technologies suited to construction and operation by local communities. In the field of irrigation, the aim is to develop ways for family-scale farms to use small-scale irrigation especially in semi arid Africa. Techniques to gain access to groundwater in shallow rock and alluvial aquifers and efficiently to deliver it are being developed.

Transportation

Research into the behaviour of certain soils and surfacing materials and aids to improved road maintenance complement the TRRL programme.

Renewable Energy

The development of improved cooking stoves, windpumps, small hydropower and cheaper means to briquette wastes into fuel are the main topics. Work on solar crop-drying and combined wind/diesel power generation has also been supported.

Buildings and Construction

Work has been concerned mainly with the development and evaluation of cheap materials and construction methods for dwellings and with urban planning methods.

9. Support has been given also to several projects to do with the use of remote sensing methods for such applications as the planning of roads and railways; water resource evaluation; rainfall estimating and volcanic behaviour.

10. The annual allocation for contract research is some £1,200,000, but since many projects run for several years, the current commitment is as follows:

*1 March 1989]**[Continued]*

	£
Water and Sanitation, and Irrigation	610,961
Transportation	418,140
Energy	137,441
Building	637,085
Total	1,803,627

11. Increasing attention is paid to the transfer of knowledge to the developing world. In particular, all researchers are encouraged to publish the results of their work as widely as possible. The scientific units are provided with funds to transmit such information widely, and are also assisted in operating information services to respond to particular queries received from the developing world.

ANNEX 4

ECONOMIC AND SOCIAL RESEARCH

1. The objective of ODA support of economic and social research is to increase knowledge of and obtain insights into how policies and practices can be changed to relieve poverty and improve growth prospects in developing countries. The emphasis is not on theoretical or fundamental research, which is already being carried out by the academic community, but on work which will be of practical relevance to developing country governments and institutions and to aid donors within a reasonably short time period. Most of the research we support addresses issues of particular importance to the poorest countries.

2. Within ODA we have over 40 professional staff providing advice on economic, social, finance and management and statistical aspects of the aid programme. About a third of these advisers are in multidisciplinary teams overseas in our Development Divisions. Much of this in-house professional work centres on the in-depth assessment of the economies we aid; help in the formulation of country aid strategies, together with the identification, design, appraisal and monitoring of aid projects and programmes. An increasing professional effort is being put into ways in which our bilateral aid can be made more effective through improving the efficiency of the public sector institutions in developing countries. Our professional staff also keep us in touch with ideas on the evolution of development thinking and the performance of developing countries.

3. ODA promotes economic and social research on both a bilateral and a multilateral basis. The different mechanisms through which funding is provided are discussed below. They are as follows:

Bilateral programmes:

- (i) the Economic and Social Research Programme (ESCOR), totalling some £800,000 a year, administered by ODA;
- (ii) an annual core grant (£1.35 million in 1989–90) to the Institute of Development Studies at the University of Sussex;

Multilateral programmes:

- (i) our general contribution to the World Bank, which spent \$170 million on analytical work in 1988, including \$24 million specifically on research;
- (ii) an annual grant of around £200,000 to the OECD Development Centre, based in Paris.

ESCOR

4. Under ESCOR ODA provides grants to researchers at British institutions to undertake work in areas of key concern to ODA. Most support has gone to the leading development research centres, notably the Overseas Development Institute (ODI), Queen Elizabeth House, Oxford, the Overseas Development Group (University of East Anglia), IDS (in addition to funding mentioned below) and the Institute for Development Policy and Management (University of Manchester). Our main areas of interest are: structural adjustment, institutional development, poverty alleviation, agricultural and rural development, food security, the environment, and gender issues. We give priority to research on the poorer countries of Africa and Asia particularly those in which ODA operates a reasonably large aid programme. We also prefer to support projects involving collaboration with research institutions in developing countries, to build up local research capacity and to ensure that research findings are widely disseminated and applied. Research proposals above £40,000 are assessed by the ODA Advisory Committee on Economic and Social Research, a non-departmental public body consisting of 10 distinguished academics and five ODA staff.

5. There have been a number of highlights in recent research. In the area of structural adjustment, nine case studies are being carried out focussing on the political economy of adjustment. In order to improve knowledge of the impact of adjustment on poorer groups we supported a project to assess the validity of

*1 March 1989]**[Continued]*

household survey methods. On poverty and gender issues, a study is being carried out in Zambia on the impact of new farming systems on the household division of labour. A project is also being mounted to examine the means of identifying vulnerable groups in food crises. On the topic of the environment, research has been completed which developed a method of evaluating institutions responsible for managing common property resources. Further details of the programme are given in the 1987–88 Annual Report on Economic and Social Research.

Institute of Development Studies (IDS)

6. ODA has funded and been closely associated with IDS since it was established in 1966 as a preeminent national centre for the study of problems of developing countries, particularly in the economic and social science disciplines. IDS enjoys a substantial reputation both in Britain and internationally. The Institute has been a pioneer in research and thinking on issues relating to rural development, food security and food aid, the development of social services, the role of the public sector and gender. It is strengthening its capabilities in areas such as policy reform and the challenge of how to reverse the decline of many of the poorest developing countries, particularly in Sub-Saharan Africa. Its research fellows frequently undertake consultancy work for governments and aid agencies, which draws on their research findings and enables fellows to keep abreast of the concerns of the donor community. Such interchange ensures that research is relevant and findings are widely disseminated. As well as undertaking research, IDS has a teaching programme, including an increasing number of short courses aimed at officials from developing countries, as well as postgraduate courses. Funding from ODA is agreed over five year planning periods, the current one running between 1986 and 1991, our core grant meets about one half of IDS costs.

World Bank

7. The World Bank takes a leading role in undertaking analytical work on developing countries. Most of this is directly concerned with its lending programmes and involves detailed macroeconomic and sector studies in individual countries. In addition the Bank has a substantial research programme, aimed at increasing general understanding of the development process, while still being clearly directed at areas which will yield improved policy advice. Currently the three categories of research receiving most funding are macroeconomic work (focussed on adjustment and trade issues), agriculture and rural development, and population and human resources. The Bank has also recently given priority to developing its research programmes in the areas of environment and women-in-development, and to building research capacities in developing countries.

8. ODA has collaborated with the World Bank on a number of research projects, including an environment study in Nepal and a study of long-term prospects in Africa, and further joint research is envisaged in future. In addition there has been collaboration between the Bank and the Institute of Development Studies, notably through the holding of seminars for developing country officials on structural adjustment issues.

OECD Development Centre

9. The Development Centre is a semi-autonomous part of the OECD and carries out research on problems of relevance both to developing and developed countries, focussing on the inter-relationships between these groups. Consequently its work is complementary to the research ODA supports elsewhere. Current research addresses the following themes: the financing of development, changing comparative advantages in international trade, structural adjustment, employment and human resources, and alternative development strategies. All the leading members of the OECD share in financing the work of the Centre.

ODA Evaluation Studies

10. ODA evaluates around 15 to 18 of its projects and programmes each year, at a cost of some £400,000. While the funding of this work is separate from the support to research mentioned above, most of the studies produced are circulated widely. Thus, as well as helping ODA improve the design and implementation of its programmes, the studies are useful to other donors and recipient governments and sometimes give rise to new insights into the development process.

ANNEX 5

INTERMEDIATE TECHNOLOGY DEVELOPMENT GROUP (ITDG)

1. ITDG is a registered charity and a company limited by guarantee. Its purpose is to provide advice and practical help on the appropriate choice of technologies for the rural poor of the Third World. ITDG depends for support on donations from individuals, trusts, firms, foundations, the ODA and its own earnings. The Prince of Wales is Patron.

2. In its early days ITDG tried to develop low cost but modern technologies which could raise the productivity and incomes of poor rural people while being widely applicable. The Group achieved some notable technical developments such as improved windmills, fishing boats and small scale hydro-generators.

*1 March 1989]**[Continued]*

More recently, it has become apparent that there is now a wide range of appropriate technologies available. So, although the objective remains the same, the group's activities have moved downstream towards adapting and disseminating available methods. This has involved cultivating close relationships with collaborators in developing countries, who are mainly Non-Governmental Organisations or private business. Consequently, ITDG has taken on an institutional development role, alongside its more traditional technical work, involving training and the secondment of increasing numbers of ITDG staff. The Group is increasingly aware of the importance of a favourable policy environment if entrepreneurs are to adopt improved technologies.

3. Seven countries have been identified for concentration—Peru, Zimbabwe, Bangladesh, Southern India, Sudan, Kenya and Sri Lanka. Country Representation Units have been opened in Peru and Zimbabwe and will be followed by others. Their job involves cultivating links with local collaborators, improving the two-way flow of information with ITDG and, where appropriate, attempting to influence policies.

4. ITDG's budget for 1987–88 was £3.6 million compared with actual gross revenue of nearly £3 million in 1986–87. ODA's grant of £1.5 million in 1987–88 increased to £1.8 million this year and will rise to £2.1 million in 1989–90 (a 50 per cent real increase over the previous triennium). The grant supports specific overseas activities plus related UK overheads. ODA country programmes and research funds provide additional support—usually less than £100,000 a year.

5. Our main grant provided 40 per cent of the gross revenue in 1986–87. While increasing our funding to support an expansion of ITDG's activities, we have encouraged the Group to widen its funding base so that our main grant decreases as a proportion of total income. ITDG is working on that basis; part of its strategy is to gain a wider awareness of its activities in Britain and overseas including a recognition of the significance of its long-term strategy aimed at assisting sustainable, self-help development.

ANNEX 6

EDUCATION AND TRAINING

1. Educational and training institutions in Britain and other countries have an important role in developing science and technology appropriate to developing countries and transferring this knowledge within and between countries. The Aid Programme supports these activities in a number of ways.

2. The Aid Programme contributions channelled through multilateral aid organisations eg the World Bank and the Regional Development Banks, the UN Specialised Agencies and the United Nations Development Programme, the European Community Aid Programmes and the Commonwealth Programmes are all involved in financing such activity.

3. A substantial part of the bilateral aid programme is spent in support of education and training activities and institutions much of it in the field of science and technology. ODA's technical co-operation training, financed from individual country aid programmes, involves expenditure of about £72 million in 1988–89. This training takes place mainly in the UK. The subject areas of the training are shown in the table attached which also covers a number of other education and training schemes financed from the Aid Programme.

Training

4. Much of the training is related to specific projects, and is therefore part of the activities described elsewhere. But a significant number of awards are not project-related and are provided to make good general shortages in the science/technology areas in certain developing countries. Virtually all the trainees under the China Technical Co-operation Training Programme, for instance, are scientists.

5. ODA also funds a number of separate scholarship schemes:

- (i) the Commonwealth Fellowship and Scholarship Programme which offers prestigious awards mainly to scientists (£7.9 million in 1988–89);
- (ii) the ODA Shared Scholarship Scheme, which provides 150 new awards each year overall, mainly in science-related fields of study (£1.4 million in 1988–89);
- (iii) the Sino British Friendship Scholarship Scheme (£7 million over 10 years starting in 1987–88) which concentrates mainly on science subjects as do
- (iv) the Royal Fellowships awarded by the Royal Society and funded by ODA;
- (v) ODA also contributes to the FCO Scholarships and Awards Scheme (£1.5 million in 1988–89).

Books

6. ODA spends well over £4 million per annum on book schemes, virtually all of which are scientific/technological in subject-matter. The Low Priced Book Scheme, which provides £1.2 million per annum to support the publication of cheap student editions in developing countries concentrates almost exclusively

*1 March 1989]**[Continued*

on the sciences, while many of the presentations under the Book Presentation Programme are similarly in the fields of science and technology, particularly those which are project-related.

English Language Training

7. Other less obvious areas of activity provide support for the indigenous development of science and technology. Many English Language teaching projects at the university level are designed specifically to enable students of the sciences in countries as far apart as Brazil and China to be able to use key texts in their field of study which are written in English, and to understand papers given in English by visiting foreign experts who are not necessarily themselves British. This English for specific purposes or for academic purposes is the subject of a significant number of English language teaching projects globally, and the facilitation of technology transfer is its main justification.

British Council

8. The aid programme provides support for links between British and developing country universities by means of a £3.2 million block grant to the Higher Education Division of the British Council. The Committee for International Co-operation in Higher Education advises on the deployment of this grant, and almost all of it is devoted to links in the science/technology fields, with an emphasis on technology transfer and joint research.

9. In addition, as joint sponsoring department, together with the Diplomatic Wing, the ODA provides approximately one third (currently about £23 million) of the government core grant to the British Council. A substantial proportion of this is used by the British Council for activities in the science and technology field. The British Council will be providing evidence to the Committee separately, and it can be assumed that most of the science/technology activities, such as the interchange and university link schemes, library and books work and the Council's information services, which it undertakes under its core grant in or for developing countries are financed from the ODA share of its core grant.

Other activities

10. In addition to training (paragraph 4 above) the bilateral country aid programmes also finance a variety of other activities in the educational sector which aim to develop science and technology in the country concerned. In many activities it is not easy to separate out the specific science/technology elements; assistance with teacher training and curriculum development at secondary school level in Kenya, for example, inevitably involves assisting with improvements in science and mathematics teaching and particularly in making the science curriculum more relevant to the local environment. A very substantial number of educational projects concentrate on the improved teaching of science and mathematics at secondary level through teacher training, curriculum, the production of materials and the equipping of schools and other institutions and science laboratories.

11. Most British aid to universities (additional to that provided through the British Council Higher Education Division) is in the field of science/technology; a prime example is our programme of assistance to selected key university departments in Pakistan, costing approximately £0.45 million in 1988–89; where the focus is on Chemistry and biochemistry, physics, botany, genetics and agronomy. There are many similar examples elsewhere often involving the provision of laboratory equipment, scientific materials, and British staff and consultancy advice, and training in British universities; the work is frequently done through support for a link between an individual British institution and a selected collaborating institution in the developing country.

12. The aid programme also finances support for the teaching of technical subjects in developing countries through technical teacher training and direct support to Polytechnics and technological universities. A good example is our support for the Asian Institute of Technology in Bangkok, and our cofunding of a World Bank technical teacher training project in Bangladesh, where Britain provides technical co-operation and capital aid worth £2.83 million to support the establishment of a Technical Teacher Training College in Dhaka.

1 March 1989]

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UK Aid Programme Financing of Students and Trainees—Training by subject⁽¹⁾ 1987 (calendar year)

	Person-years						
	TC Training programme (TCTP) ⁽²⁾	C'wealth Scholar and Fellow Plan (CSFP)	British Council	World University Service	ODA Shared Scholarship Scheme ⁽³⁾	Sino-British Friendship Scholarship Scheme ⁽⁴⁾	Total
(a) Total							
<i>Subjects allocable to economic sectors</i>							
Renewable natural resources	784	82	9	1	11	—	888
Mining	112	11	1	—	—	2	126
Manufacturing	135	13	7	1	5	9	170
Energy	90	5	1	2	—	2	99
Construction	352	34	11	5	4	2	408
Trade and tourism	48	1	—	—	3	—	52
Transport and communications	241	8	5	2	2	2	260
Financial services	36	—	—	17	13	—	66
Public administration	177	27	5	3	4	1	217
Planning	148	29	5	4	7	2	195
Environmental amenities ⁽⁵⁾	106	9	3	2	4	—	124
Education	871	51	102	3	4	1	1,031
Health	606	115	43	6	9	3	783
Social development	72	5	4	1	13	—	95
Other community services	65	9	6	3	8	—	90
Sub-total	3,843	399	202	50	87	25	4,604
<i>Subjects not allocable to economic sectors</i>							
Natural sciences	480	143	51	26	25	18	742
General engineering	271	38	11	15	12	9	354
Arts	47	45	58	3	2	5	160
Social sciences	463	34	15	5	6	1	524
Unknown	606	3	26	—	—	5	640
Sub-total	1,866	263	160	48	45	38	2,421
Grand Total	5,709	662	362	97	132	63	7,025
<i>(b) of which women</i>							
<i>Subjects allocable to economic sectors</i>							
Renewable natural resources	89	8	2	1	—	—	100
Mining	4	1	—	—	—	—	5
Manufacturing	10	—	2	1	—	1	14
Energy	3	—	—	—	—	—	3
Construction	13	4	2	—	—	—	19
Trade and tourism	10	—	—	—	1	—	11
Transport and communications	8	—	1	2	—	—	11
Financial services	11	—	—	6	2	—	19
Public administration	42	6	3	1	1	—	54
Planning	25	4	—	—	3	—	32
Environmental amenities ⁽⁵⁾	6	—	1	—	—	—	8
Education	280	14	35	2	2	—	333
Health	191	25	9	4	3	1	232
Social development	16	1	2	—	2	—	21
Other community services	28	2	4	—	4	—	38
Sub-total	736	66	60	17	18	3	901
<i>Subjects not allocable to economic sectors</i>							
Natural sciences	94	25	12	10	4	3	147
General engineering	8	2	—	—	—	1	11
Arts	14	13	15	1	—	1	44
Social sciences	89	10	3	1	2	—	106
Unknown	77	1	12	—	—	1	90
Sub-total	282	50	42	12	6	6	397
Grand Total	1,019	116	102	30	24	9	1,298

(1) Student and trainee statistics are supplied according to the subject being studied. As far as possible these subjects are allocated to an economic sector and shown in the first half of the table. However students studying subjects such as mathematics, electrical engineering and accountancy can be of benefit to most sectors and cannot be allocated in this way. These students and trainees are shown in the second half of the table.

(2) Includes students administered by the British Development Division in the Caribbean and the Pacific. In previous editions these students were classified as "other".

(3) Began in 1986, but excluded from the previous editions.

(4) Began in 1987.

(5) Water supply, sanitation, urban and industrial development.

1 March 1989]

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ANNEX 7

LIST OF ODA AND RELATED PUBLICATIONS

- British Overseas Aid in 1987 (ODA 1988).
 British Aid Statistics 1983–87.
 Second Report from the Foreign Affairs Committee (1986–87): Bilateral Aid: Country Programmes. CM225.
 The Government Expenditure Plans 1989–90 to 1991–92: Chapter 2 FCO including ODA. CM602.
 Report on Research and Development 1986–87 (ODA 1988).
 Annual Review of Government Funded Research and Development (1988).
 ODNRI: Annual Report 1987.
 CGIAR: 1987–88 Annual Report (Consultative Group on International Agricultural Research 1988).
 National Audit Office Report on ODAs Technical Co-operation Programmes (1987–88). HC129.
 Public Accounts Committee Report on ODAs Technical Co-operation Programmes (1987–88). HC223.
 PAC's Report on ODA's Technical Co-operation Programme. CM410.
 ODA Economic and Social Research—Annual Report 1987–88
 Committee for International Co-Operation in Higher Education: University Links. The British Council 1987.

Supplementary memorandum by the Overseas Development Administration

What proportion of ODA-funded R&D is carried out locally by developing country nationals?

It is difficult to give an accurate figure because aggregated statistics are not available on this basis. It is ODA policy, wherever possible, to encourage collaboration and joint research activities between institutions and their counterpart bodies in developing countries. The approximate figure is probably of the order of 20 per cent.

What steps does ODA take to achieve technology transfer and the dissemination of research results? Are research results always made public? Does ODA take steps to encourage exploitation of research results by commercial companies?

Technology transfer and dissemination of results are important features of ODA's programmes. Technology is transferred by means such as the appointment of UK experts (TCOs) to work with the developing country organisations, scholarships enabling selected local personnel to obtain appropriate training in the UK, training in the developing country itself, and by twinning arrangements between British institutions and other counterpart organisations in a developing country.

Where necessary the ODA encourages and supports special courses in UK universities, as for example the institute of irrigation studies at Southampton, the tropical highways course at Birmingham, or the public health course at Loughborough.

Aid programme funding is available for the dissemination of scientific information to the developing world. This is used to fund publications, seminars, conferences and participation by British experts at international conferences. Subscriptions to scientific and technical journals on behalf of institutions can also be funded.

The results of research are made freely available and the widest possible publication is encouraged.

Links with commercial companies for research purposes are fostered where appropriate. Some examples of such work are in low-head drip irrigation, powered auger drilling, micro-hydro electric turbine development and wind-powered pumps. The participation of commercial companies is often fundamental to successful acceptance of new ideas and the availability of equipment in the developing world.

What would be the effects of spending training funds in developing countries, rather than in the United Kingdom?

- (a) We should need to build up further the local institutions. The capacity for up to and including first degree work exists in most subjects in most countries. Further development to meet varied requirement at post degree level could be expensive in small countries where economies of scale are not possible.
- (b) Student exchange between developing countries might increase. (We do already finance some third country training—in another developing country—where a course is considered to be more relevant than in the UK: third country training includes the regional universities of the Caribbean and the Pacific.)

*1 March 1989]**[Continued]*

- (c) Fewer people might come to this country for training.
- (d) Institutions and the UK economy in general may lose business.
- (e) Students would not get the broad international perspective nor the academic excellence of study here.
- (f) Staff at UK institutions would lose the opportunity to widen their own understanding of developing country issues and the expertise of UK institutions may be less easy to sustain.

What provision is there for training of survey and mapping staff from developing countries, since the Directorate of Overseas Surveys was incorporated in the Ordnance Survey?

The Overseas Survey Directorate of the Ordnance Survey continues to offer specialist training in survey and mapping to a high standard. ODA's technical co-operation programmes, tailored to the needs of individual countries, are available to finance such training. There are currently 12 trainees undergoing training at OSD/OS. All training by OSD is now carried out on the basis of full cost recovery.

Has the ODA reviewed the effects of the re-organisation of the Scientific Units into a single institution and of the new status of the Directorate of Overseas Surveys?

The Scientific Units were merged to form ODNRI under one Director on 1 September 1987 and are in the process of being relocated to one site at Chatham. Just over half the staff are now at Chatham and the remainder will move over the next year. No formal review of these changes, which are incomplete, has yet been undertaken but every care is being taken during the move and reorganisation to ensure that the efficiency and effectiveness of ODNRI is maintained (see attached fact sheet on ODNRI—Annex A).

The Directorate of Overseas Surveys of the Ordnance Survey was the subject of a triennial Review in 1988.

The Review concluded that the merger with OS had been successfully achieved, but there is a declining demand from developing countries for mapping services from overseas. There continues to be a demand for advice, training and technical assistance and for the archival services of the OSD.

EXAMPLES OF SCIENTIFIC AND TECHNICAL AID

Leprosy Research

Central (JALMA) Institute for Leprosy (CJIL)—India National Institute for Medical Research (NIMR)—UK.

This collaboration project has recently finished at a cost of about £233,000. The scientific work is directed at the solution of a range of practical problems associated with the management and control of leprosy including early and simplified methods of diagnosis, a better understanding of disease transmission, and vaccine development. CJIL is the main point of clinical referral for a large part of the states of Uttar Pradesh and Rajasthan. There were 46,500 out-patients in 1986 including 9,000 new cases.

The project provided for annual visits by specialists from NIMR who assisted in the development of the scientific programme, and for reciprocal visits by senior scientists from CJIL to keep abreast of the latest scientific developments. In addition about £117,000 has been spent on British equipment for the laboratory and £66,000 on training of junior scientific staff in the UK.

Much has been achieved at low cost.

The goal is to control and ultimately eradicate the disease.

Tanzania

Research on renewable natural resources in Tanzania has been supported mainly through a number of crop-specific projects, notably into clove diseases and sunflower species. These have involved the provision of British experts, both long-term and short-term, and of training for Tanzanian staff, usually in the UK. Equipment has also been provided for the Tanzanian institutions concerned, for both laboratory and field work. In addition, an institutional link was supported between the University of Dar es Salaam's Department of Marine Biology and the University College of North Wales.

Plans for the future include participation in a World Bank-led cashew rehabilitation research project, and certain aspects of the National Agriculture and Livestock Research Project, where we hope, for example, to support the organisational component through consultant advice. We also plan to support research into crop diversification in Zanzibar, in view of the weak market for its main crop, cloves, and expect to establish a further link between the University of Dar es Salaam and a British University, this time in Applied Zoology with the University of Newcastle. A number of further crop-specific research projects, notably into cotton and tea, are also being considered.

*1 March 1989]**[Continued*

The ODA's annual "Report on Research and Development" contains details of a number of current or recent projects, arranged by sector. The 1987–88 edition has recently been published.

Overseas Development Administration

31 March 1989

ANNEX A

OVERSEAS DEVELOPMENT NATURAL RESOURCES INSTITUTE—SCIENTIFIC UNIT OF THE OVERSEAS DEVELOPMENT ADMINISTRATION

Basic Facts

1. ODNRI is the scientific unit of the Overseas Development Administration (ODA). The Institute's mandate is to promote sustainable development of the natural resources sector in developing countries through:

- assessment of land and water resources;
- pilot-scale development projects;
- applied research in the fields of pest control, crop and animal processing, storage and marketing;
- assessment of the environmental consequences of development projects.

2. ODNRI was formed on 1 September 1987 by the amalgamation of the Tropical Development and Research Institute (TDRI) and the Land Resources Development Centre (LRDC). A group of natural resources experts from the ODA's Corps of Specialists is also attached to the Institute. This integration of expertise into a single broader-based organisation follows the amalgamation in 1983 of the Tropical Products Institute and the Centre for Overseas Pest Research as TDRI; it has brought all the ODA's scientific staff under unified management.

3. There are 11 operational departments, each concentrating on specific areas of the Institute's programme. Five of these are now located at Chatham following the completion of the first phase of ODNRI's relocation to a single site. With the exception of small groups at the British Museum and the Royal Signals and Radar Establishment at Malvern, the remainder of the Institute (currently at sites in London, Slough, Culham, Porton and Reading) is scheduled to move to Chatham during 1989.

4. The Director of ODNRI is responsible to the ODA's Chief Natural Resources Adviser (CNRA). The senior management of the Institute comprises the Director (Grade 4), four Deputy Directors (Grade 5) and 12 Heads of Department (Grade 6). They meet regularly as a Management Group with the Finance and Establishment Secretaries (Grade 7) in attendance.

5. ODNRI has 453 posts (327 scientific grades and 126 administrative and support grades, including 38 industrials). Sixty-five of the scientific posts form part of the Expanded Home Base scheme. The operational staff of the Institute cover a range of specialisms and much of the work is carried out by multidisciplinary teams. Some 22 disciplines are represented; the main ones are agriculture, chemistry, entomology, food technology, engineering and economics.

6. The budget for the financial year 1988–89 is £11.5 million (pay costs £6.5 million, general expenses £4.5 million, capital £0.5 million). The budget is a charge to the Aid Vote. The limits (excluding capital) are set by the annual Public Expenditure Survey. In addition, there is a budget of £7.3 million for costs directly relating to the relocation of the Institute to Chatham.

7. Within the overall limits set by running cost ceilings, ODNRI operates as a contractor of services on which ODA headquarters has first call. Most of its output is "sold" to spending departments in headquarters, who draw on Aid Programme funds to pay for it. Thus technical co-operation assignments and country-specific research and development projects are commissioned by geographical divisions; and research and development projects which are not country-specific are commissioned from funds for natural resources research administered by Natural Resources and Environment Department (NRED). The Institute also accepts a limited number of commissions from outside bodies (typically the multilateral aid agencies). Expenditure on activities which do not lend themselves to commissioning, eg the library, advice to headquarters, staff training, is financed from a core budget allocation.

1 March 1989]

[Continued

8. The forecast out-turn for operational staff time by source of finance in 1988–89 is:

	%	Financed by
Core activities	35*	ODA headquarters
Research & development which is not country-specific	41	ODA headquarters: NRED
Technical co-operation assignments (including country-specific research and development)	16	ODA headquarters: geographical divisions
External contracts	8	bodies outside the ODA

*Includes 8 per cent related to relocation to Chatham.

ODNRI
March 1989

Examination of witnesses

Mr R M AINSCOW, Deputy Secretary; Mr A J BENNETT, Chief Natural Resources Adviser; Dr J M HEALEY, Chief Economist; Mr T D PIKE, Chief Engineering Adviser, and Mrs B M KELLY, Head of Health and Population Division, Overseas Development Administration, called in and examined.

Chairman

1. May I welcome you, Mr Ainscow, and your colleagues. Would you like to start by introducing your colleagues—there are rather more than we sometimes have.

(*Mr Ainscow*) I hope we are not too many. We are happy to be outnumbered! On my right is Mrs Kelly who is the Head of ODA's Health and Population Division. On her right is Dr Healey who is the Chief Economic Adviser for ODA. On my left is Mr Bennett who is the Chief Natural Resources Adviser. On his left is Mr Pike who is our Chief Engineering Adviser.

2. Thank you very much. May we thank you most warmly for your papers; they are very long and detailed. The papers certainly confirm that this is a very wide field. You probably realise that the broad objectives of this Sub-Committee are to investigate the effectiveness of overseas aid and the scientific and technological aspects of overseas aid, whether there are any significant gaps and whether perhaps it might be desirable to have some re-allocation of the funds that are available. I would like to ask you a rather general question to start with. How do you see the broad aims of your work in ODA? Do you regard your work as mainly a charity to help the poor and needy in the Third World, or do you regard it as good public relations for the UK, or do you regard it mainly as a commercial operation in order to help UK trade? Perhaps you might deal with those questions in your introductory statement.

(*Mr Ainscow*) Thank you, my Lord Chairman. If I may, I would like to make four general points and then perhaps touch on the question you have just asked. First, the ODA view is that if aid is to support successful and sustainable economic and social progress it needs to support activities which make sense in terms of that objective. Successive governments have recognised that science and technical aid have an important role to play in this. The projects and programmes supported must use technologies

appropriate to the economic and social circumstances of the country that we are endeavouring to help. The local institutions and organisations responsible for implementing the projects and programmes which we are financing must have the necessary technical and managerial skills. The second point, my Lord Chairman, is that we see the use of science and technology and the capacity to respond to scientific change and adapt change to local circumstances as playing key roles in the process of modernisation and development. As our memorandum notes, the fruits of science and technological development are embodied in much of what we support with aid programme funds—the equipment and machinery which is provided from British funds, the British specialists who work abroad and the training which is given in Britain and elsewhere. ODA itself has always had a substantial group of scientists, both natural and social, and technologists operating from within the organisation. We are in fact rather more strongly placed than many, if not most, other aid agencies in this regard. I am accompanied today, for example, by three of our chief professional advisers and by the Head of the Health and Population Division which includes a number of professionally qualified staff. As the memorandum we have submitted explains, we retain our own scientific institution—the Overseas Development Natural Resources Institute—and use aid funds to finance the activities of a large number of other scientific and technical institutions in the UK. My third point, my Lord Chairman, is that because scientific and technical aid is embodied in so much of what we do it is not possible separately to identify and quantify all of it. However, quite a lot of it *can* be identified fairly clearly, and I hope the annexes in our written memorandum illustrate this. We will do all we can to help provide any further facts which you feel are needed to help with your Enquiry. Finally, I think it may be helpful if I were to note that successive governments have attached a high priority to what we term technical co-operation. This covers many fields, but major elements are the training

*1 March 1989]*Mr R M AINSCOW, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY*[Continued]**[Chairman Contd]*

of people from developing countries in Britain and provision of individual specialists and the expertise of British consultancy firms and institutions to work in developing countries.

You asked, my Lord Chairman, how we saw and how the Government sees the fundamental purpose of the aid programme. We see it as providing support for sustainable economic and social progress. We do not see its fundamental purpose as being charitable, or being public relations, or being simply the pursuit of UK commercial objectives. The Government does believe that the economic growth and successful development of the developing countries and of the poorer developing countries where much of our aid is concentrated is important in the UK's long-term interests. We do not see conflicts between the pursuit of development objectives and the servicing of certain UK objectives related to political and commercial interests.

Lord Shackleton

3. I would like to ask one question on structure. Is Mr Bennett a scientist? What is his qualification? The Natural Resources Department is obviously a very big one. Do you regard that as your principal scientific department? I notice that you do not have a chief scientist like most Departments, and no doubt you have a reason.

(Mr Ainscow) Perhaps I could comment before Mr Bennett explains his background. The scientists in ODA are placed in a number of areas, they are not confined to the natural resources and environment area, though by far the largest number are in that area, particularly if one counts in the Overseas Development Natural Resources Institute. However, we do have other divisions. The Engineering Division, for example, contains civil engineers, mechanical engineers and a number of other specialist engineers. The Health and Population Division contains a number of specialists in the medical and nursing fields and in the population field. On the economic side—if you will accept social scientists in this context, my Lord Chairman—we have a substantial number of economists and sociologists in that field. Perhaps in the natural resources area I could ask Mr Bennett to describe his own position and the range of people under his command.

(Mr Bennett) Thank you, my Lord Chairman. I am basically an agriculturalist, with a predominance to overseas and tropical agriculture, and have worked in tropical agriculture overseas in many posts. I started as a soil chemist and biochemist, and I have qualifications in tropical agriculture and crop protection. Inevitably, in dealing with natural resources and environmental issues, one covers an enormous waterfront. It is extremely difficult for any one person to be expert in all those areas, and in fact extremely dangerous for them to pretend that they are. So I do have a very comprehensive team of people working with me, both on the advisory side and in our scientific institute. In consequence, we have access not only to our in-house expertise but to a very wide range of expertise from UK institutions.

4. I fully understand what you have said. When the chief scientists of departments meet to discuss whatever they discuss, and in dealing with ABRC and the research councils, who represents you—or perhaps you do not need to be represented? Does it appear to you to be a problem? This applies to the other divisions as well. You cover really the whole range of every sort of activity of a scientific and technical kind. I fully accept that.

(Mr Ainscow) Perhaps I could ask Mr Bennett, who I think touches on the areas in which you are interested.

(Mr Bennett) Thank you, my Lord Chairman. It really is a question of identifying who is the most appropriate person to interact. There is obviously no point in sending someone unless they have a knowledge of the subject and an interest in it. So if it is a matter related to our own expertise, I may go or one of my colleagues may go, but whoever is the more appropriate. So dealing with the Agricultural and Food Research Council, obviously one is dealing with a specific subject. We would choose the most appropriate expert at a senior level either within our own institute or within our own core advisory. Obviously, if I feel it is outside my competence, and in the area let us say of my colleague in engineering, then I would quickly pass such correspondence as I could to him, as he would do likewise to me.

5. The point is, you know, which has come up constantly at this Committee, whether people have got chief scientists and what use they make of them. Here we have a department with very high technical skills. You have a chief engineer. In the DTI, of course, he is called "Chief Scientist and Engineer". I just wonder whether not having somebody who is a member of the "chief scientist club" makes the slightest difference to you? I perceive you do not find it does.

(Mr Ainscow) As you said, we do have to cover a very wide field. The way we have chosen to handle that is to have a certain degree of specialism in the command of the scientific groups. We have nevertheless taken the precaution of retaining a number of people at senior level who have professional expertise. These chief advisers, of course, do cover a range of disciplines both in and related to their own field. So in that sense they act as co-ordinators and people who bring together a range of concerns, but within a given field.

Chairman] So you find it best to send the best qualified person to such meetings as Lord Shackleton has referred to.

Lord Shackleton] The chief scientists meet as chief scientists, do they not? Anyway, I will not press it. It is a minor point. I have a feeling you are not conscious of any drawback as a result of not having a chief scientist. It is quite an interesting point. Maybe it is just a status symbol in the other departments.

1 March 1989]

Mr R M AINSWORTH, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY

[Continued

Chairman

6. Could we move on to the questions now? How do you expect each of the elements of scientific and technical aid, STA for short, such as research and development, consultancy, training and the like, to contribute to your work? How do you see the priorities?

(*Mr Ainsworth*) My Lord Chairman, as I think I must have indicated in what I have already said, we see development as a wide-ranging issue. It is not simply a matter of finance, but also a matter of transferring know-how for developing local skills, and of developing local institutions. The institutions we see as particularly important because there is a need to manage and apply scientific and technical knowledge and information to a very wide range of problems in each of the countries. We are also aiming to emphasise and focus on the results and impact of what we are doing rather than trying to look at the individual inputs into the various problems we are trying to tackle, so we see the elements as available to be brought together as appropriate in relation to particular problems. By the "elements", I mean financial aid and the provision of equipment and the machinery that might allow, the provision of experts from Britain, the creation of links between British institutions and overseas institutions, and the bringing to the UK of people in the areas we are trying to help for training in the UK. We try and bring these things together in relation to particular problems. There are numerous examples of this, My Lord Chairman. If you would like concrete examples of one or two of these things, we would be happy to give them.

Chairman] I think that is very clear. Yes, we should like to receive some examples in due course please.

Lord Thurlow

7. Could I ask about the relative priority attached to scientific research in relation to the other broad headings of ODA's work? I take it that from time to time, or once a year, there is a bit of a fight between departments to get as big a share of the general Treasury cake as possible. In that kind of internal review, do you find yourself up against a problem of not being able to get as much support as you would like for the purer forms of research as distinct from the kind of operations that make more of a splash in the field?

(*Mr Ainsworth*) My Lord Chairman, the way the ODA finances are operated and the way the public expenditure review works is that the ODA receives a block vote essentially. We do not receive under the public expenditure process allocations for various elements of our activities. We receive an overall allocation, that is the aid programme allocation. Within that allocation the FCO Ministers, in consultation with their colleagues as appropriate, make decisions as to how to divide that cake amongst the various activities we are involved in financing, and there are many. The contributions to multilateral institutions come from within that cake. The financing of our bilateral country to country pro-

grammes comes within that cake, and the financing of sector programmes comes from within that. Much of the research work to which I think you were referring is financed from within the sectoral programmes which, when they are allocated, are managed by the chief advisers in ODA, who will seek approval for allocating particular institutions for which they are responsible. This process goes on annually and is run on a three year rolling programme basis.

Lord Adrian

8. In determining priorities within the grant you get from the Treasury, how far do the priorities originate from yourself or indeed the Government, and how far are they responsive to the recipients? What are your priorities? Are they made public? Are the requests from overseas places to which we are doing these good things also made public? How far do you respond to them?

(*Mr Ainsworth*) This is a process which is almost continuous. The large number of multilateral institutions to which we are contributing each has its own cycle of financing and replenishment and negotiation. That is an internationally negotiated operation. The United Kingdom has a particular role to play in that. The policy of the Government is to ensure that we continue to play a significant role in those international institutions to which we contribute. The process of allocating country programme resources is a coming together of the Government's views of priorities as to where it wishes its country programme resources to go. Its present policy, like that of its predecessors, is to focus on the poorest countries, so that a very large proportion of our bilateral aid goes to the poorest countries. I think that something like 80 per cent of our aid goes to the countries with per capita income of less than \$800. I am not quite sure of the figures, but it is something like that. Within the sectoral allocations, we and the institutions which we are financing have consultations regularly to assess their proposals for what they are doing with the money we are supplying and what they would propose to do with new money if it were available. An assessment is then made of those proposals, and at the end of the day the relative priorities are attached. What comes out at the end, if I could put it like this, reflects the pulling and pushing of those processes which, as I say, are going on all the time.

Chairman

9. So all the projects come up from the countries concerned as proposals which are then assessed?

(*Mr Ainsworth*) With the country bilateral government-to-government programmes we would have within Government a planning framework which runs a number of years ahead. We have indicative earmarkings for each country that we are assisting. The ODA country programme managers are expected to enter into discussions and detailed consideration with the representatives of overseas governments to determine how these can best be used to meet their priorities and their own plans.

1 March 1989]

Mr R M AINSWORTH, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY

[Continued]

[Chairman Contd]

So that within the financial envelope our country programme managers, with the help of the specialist advisers who are attached to them, make assessments of how best to use those resources.

10. But the *ideas* come from the countries concerned?

(Mr Ainscow) We cannot proceed with any proposal unless the country is agreeable that it should go ahead. They are mutually agreed.

11. That is not quite an answer to the question. The question is, do the ideas always come from the country concerned?

(Mr Ainscow) Not always.

12. Do you sometimes say to a country, "We think you ought to have that"?

(Mr Ainscow) The process of dialogue is continual, with their saying "We would like this" and our saying "Well, can we look at that to see if that's the kind of thing we'd wish to do, and have you thought of doing this rather than that?".

Lord Adrian

13. Could I ask how far the dialogue is exclusively with the government and how far with the NGOs in other countries and, indeed, other international NGOs?

(Mr Ainscow) Most of our country-to-country programmes involve government-to-government negotiations almost entirely.

14. I can see that that must be so, but I was really enquiring as to how far other agencies come into it.

(Mr Ainscow) The flow of funds to NGOs is through a rather different channel where we have earmarked in our resources funds for the joint financing scheme which operates on a 50:50 basis with British NGOs operating overseas—and that is growing very rapidly as a share of resources—and financing UK volunteers overseas. Again, that is a separate pocket of funds, it does not come from the country programmes. Non-governmental institutions do get involved in country programmes as we implement proposals, rather than initially in the decisions as to how we should use those resources.

15. I think I was feeling for whether UNESCO and ICSU were among the groups with whom you have related in terms of scientific Third World problems, because those bodies are very much involved in the questions, are they not?

(Mr Ainscow) Yes. A very important role is played in all these activities in co-ordinating with other bodies involved in the same field—other bilateral donors and multilateral institutions. That co-ordination goes on in the governing bodies of those institutions and in the capitals of the countries we are assisting. There is for most of them a local co-ordinating process which brings together the various bilateral donors and the international institutions which are active in that country. There is an attempt to co-ordinate aid in that way at the country level.

Baroness White

16. If one concentrates more specifically upon research activity, with which this Sub-Committee is specially concerned, how far do you find yourselves in a position to spend money in the countries concerned? How far do you find that you have to bring personnel over to the UK or maybe some other appropriate country for research training? I find paragraph 53 of Annex 1 of your memorandum extremely interesting. You say that the ultimate benefits of UK-funded research can be captured by developing countries only if three conditions hold. You spell those out in paragraph 53 which I found very revealing. Subsequently you point out that in certain parts of the world, such as southern Asia, the constraints are a little less difficult than in others such as sub-Saharan Africa, where they are almost insuperable. How do you deal with those situations, bearing in mind that it is the beneficiary countries that we are primarily concerned about? How can you maximise the benefit to them?

(Mr Ainscow) As you have rightly pointed out, and as the memorandum notes, the situation of disseminating science and technology into specific country situations and concrete proposals in those country situations differs very considerably in different countries. In South Asia on the whole, though not in every country, the strength of the local scientific community and of the institutions that exist is much greater than in some other parts of the world. In Africa there is undoubtedly a crisis in many different senses. One of those senses is that the indigenous research capacity, some of which was created many years ago, has withered. It has withered in part because finance has often not been available to support it. There are also difficulties in retaining scientifically trained staff to work in the public sector.

17. In other words, you have great difficulty on the scientific and technical research side?

(Mr Ainscow) We certainly find it is not possible to spend money unless we have taken the precaution of building an institution capable of using the money properly. There is a great deal of concern about local institutions, particularly in Africa, and there are efforts being made in many fields, not simply the research and science fields, to create or in some cases re-create and revivify institutions in this field. Some of these proposals are multilateral. It may be helpful to you if Mr Bennett spoke about the effort that is being made to support national agricultural research institutions in Africa where a special international programme has been created for that purpose.

18. Perhaps he could also tell us under whose auspices that is being done?

(Mr Bennett) Thank you, my Lord Chairman. There is a programme called "The Special Programme for African Agricultural Research" (SPAAR). This was a product of a meeting in Japan in 1985, where donors recognised that research institutions were going to be a major constraint on the development of relevant technologies for Africa if something was not done about the institutions within

*1 March 1989]*Mr R M AINSCOW, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY*[Continued]**[Baroness White Contd]*

African countries. Recognising that unco-ordinated bilateral activity might not necessarily bring about the desired effect, it was decided that those donors who had a real interest should actually get together. This is how SPAAR was formed. SPAAR has been in active life for the last four years. It meets twice a year, and it looks at what might be done. Its initiatives are broken down into three main categories. The first category is nationally based initiatives. One example at the moment is Tanzania. Tanzania wishes to restructure and revitalise its research services, and the donors who are interested in doing this are ourselves, the Germans, the Dutch, the Canadians and the World Bank. So there is an interest group, and they sit down with the Government of Tanzania and say: "Right, how are we going to go about this? Let us look at the institutions, let us look at the training. Let us look at what the research requirements are." The other thing that SPAAR is doing is looking at general cross cutting issues of such things as technology transfer, information dissemination. Information dissemination comes in two ways, one between donors telling each other what they are doing, so we are not commissioning research projects here that are being duplicated elsewhere, and the other is to make sure the information so generated is available to Third World countries. The final activity is special activities where, for example, in locust control there is general international concern, not just for the control but whether future plagues might be avoided through, let us say, the use of biological techniques, to avoid the necessity of using chemicals. So here is an example where all donors have arrived at the same conclusion. African institutional capacity is weak. To work as individual bilateral donors is highly satisfying in some respects, but really one needs co-ordination. Therefore, there is a mechanism for doing it. It is kept lean, it is kept active and action-orientated.

Lord Adrian

19. Can you give us an idea of the number of K or M contributed by ODA to this particular enterprise in Tanzania?

(Mr Bennett) I would rather come back with an exact figure later.¹

Lord Perry of Walton

20. In my experience there is a great deal of resistance and suspicion in quite a lot of countries about bilateral aid as some national aid authorities tie it to the commercial advantage of the donor country. What is the balance of resource that is devoted to multilateral aid as compared with bilateral aid? Secondly, do you think that that balance is appropriate? Thirdly, do you have views about whether or not we ought to be back in UNESCO, which is in many ways welcomed in developing countries in a way that no individual nation's help is welcomed and where in my experience a lot of ideas get thrown

up which end up by being satisfied by individual nations? If we are not a member, we get no chance of finding out about those opportunities.

(Mr Ainscow) Could I start with the bilateral/multilateral situation? In quantity terms, the balance in the British aid programme is that about 40 per cent of the funds available pass through multilateral channels, and the remainder goes bilaterally.

21. Incidentally, do you count the SPAAR as multilateral?

(Mr Bennett) It is a donor co-ordination mechanism. We all go to the table. Then when we implement, the multilaterals put in money and the bilaterals put in money. It is done on the basis of who is going to do what and a general pattern of comparative advantage.

22. When you said 40 per cent, did it include that money?

(Mr Ainscow) The money which SPAAR is co-ordinating will come from both channels. That is the answer to the question. Some of our contribution to the World Bank, from IDA, would be passing into the SPAAR operation. Equally, our own bilateral money in support of African agricultural research would be going into it. So some comes from the 40 per cent and some comes from the 60 per cent. It is being co-ordinated in a programme on the spot.

Chairman

23. On those percentages, would they roughly apply to the scientific and technological aspects of it, as well as the broad—

(Mr Ainscow) No, I do not think they would. That becomes a very difficult area to quantify. What we can tell you is what amount of money is going bilaterally in support of research and development institutions, and what amount of money is going direct to specialised international research and development institutions.

24. Perhaps you would let us have a note about that. It is probably the easiest way.

(Mr Ainscow) It is about £27 million, I think, going into the bilateral work of the research institutions, and about £7 million going into a number of specialised international research institutions. Of course, as I said, there are activities which other multilateral agencies carry on, the funds for which originate with the aid programme, but which are channelled through them into the various operations that we would identify as scientific and research. On the question of the balance between them, the Government, of course, does not take a view in terms of the overall balance. It is obliged, and rightly, to try and deal with the situations of individual multilateral institutions before taking a judgment on what the British contribution should be. So the overall allocation going through multilateral channels is the result of an accumulation of individual decisions on many different institutions, some of which are stronger than others. We have, and we do try, to judge the effectiveness of individual multilateral institutions. We have done a fair amount of work on

¹*Note by the witness:*

The current commitment to this programme is £600,000; this figure may be increased as the programme develops.

1 March 1989]

Mr R M AINSCOW, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY

[Continued]

[Chairman Contd]

that, and discussed with our other colleagues who contributed to them, and made that widely available. I think I was asked where we stood on UNESCO.

25. Yes. Has the attitude changed since the change in direction?

(Mr Ainscow) My Lord Chairman, I think I can only refer the Committee to the answer that the Minister, Mr Eggar, gave in the House of Commons. I am afraid I have lost the reference—I could give it to the Clerk afterwards. That states the Government's position, which is that we have to wait and see what progress is made in the reforms that we hope are in train.¹

26. Do you see any disadvantage from your point of view in not having the contacts that we used to have in UNESCO?

(Mr Ainscow) We do have an observer in UNESCO, who can keep us informed of the programmes that are in train. To the extent that their programmes do reach the grass roots and the operational end, then we are able to join with them, where that is appropriate, in financing local scientific institutions. In addition, when we left UNESCO we took care to make sure that those organisations which UNESCO was funding, which we value, continue to receive finance from ourselves. Hansard has very recently, in February of this year, My Lord Chairman, printed an account of how something like £6million of funds that might otherwise have been used in UNESCO is being used.²

27. How much multilateral aid for science and technology comes back to the UK from these programmes to which other countries contribute?

(Mr Ainscow) I am afraid we do not have the figures for the science and technology element separately, my Lord Chairman. I can give you an indication of overall and of various important elements of the process. In 1987 the figures are that for every £1 we contributed to the multilateral institutions £1.70 was spent by them on British goods and services. There is not an automatic relationship between that, of course, there are two separate processes going on. This particular ratio does vary quite considerably between the various agencies. In the case of the banks you would expect a very high ratio, because, like others, we are contributing to the capital of the banks, they are borrowing funds on the basis of that capital and financing projects on a much larger scale, so in that case, in the case of the World Bank and the regional development banks, for every £1 we are subscribing in capital, something like £10.25 is coming in to purchase UK goods and services. In the funds—that is, where concessional resources are being passed through the organisations—then if we include the European Community channels in this calculation, for every £1 being made available £1.16 is coming back.

¹Note by the witness:

See House of Commons Official Report, 29 November 1988, col. 186 W.

²Note by the witness:

See House of Commons Official Report, 20 February 1989, cols. 452/3 W.

28. You would regard that as quite satisfactory, would you, or would you like to see more?

(Mr Ainscow) I do not think the Government would regard it as as satisfactory as it should be, but I think they would think it not too bad.

29. Is it a question of us being competitive in providing the services that other countries think should be provided, or are there other factors that come into it?

(Mr Ainscow) All these institutions do organise the procurement they finance, on an international competitive bidding basis, so the key consideration is the competitiveness of the British suppliers of the goods or the services that we have available.

Lord Perry of Walton] Looking at it from the point of view of a complete beginner in economics, it looks to me that the more you spend the better off we would be.

Baroness White

30. That is much too simplistic!

(Mr Ainscow) With respect, I do not think that that follows, my Lord.

Chairman] When we get the £1.70 or whatever it is we get back, we have to supply goods for it, so it is not free money.

Lord Adrian] What is the value added?

Lord Perry of Walton] Yes, what is the profit?

Lord Adrian

31. What is, therefore, the return on the £1 spent?

(Mr Ainscow) I am not sure I can get into the issue of how profitable the goods are to the British firms and individuals who supply them, but you will recognise that the relationships I described are from two separate processes one of which is the contribution process and the negotiations that go into what share we take of that total and the level of the total replenishment of whatever fund is being operated, and the quite separate process of the international bidding process. A change in one does not have any necessary change in the other.

Chairman] They are independent, I see.

Earl of Ilchester

32. I think Mr Bennett has already touched on this point in his remarks on SPAAR. As we all know, STA is an extremely broad church both nationally and internationally. There must be a wealth of experience ready to be shared amongst those contributors, and great opportunities for cross-fertilisation. How does the ODA benefit from the experience of other STA donors? For example, I believe that in Europe there is an organisation called the European Consortium for Agricultural Development in which the Belgians, the French, the Germans, the Italians and the Netherlands have a part, specifically for the co-ordination and sharing of experience amongst those NGOs or those charities involved. Is there such an

1 March 1989]

Mr R M AINSCOW, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY

[Continued

[Earl of Ilchester *Contd*]

organisation or a mechanism in this country, in which the ODA can pick up ideas from abroad or from at home? Linked to that, what innovations or trends are of interest in that particular context?

(*Mr Ainscow*) My Lord Chairman, perhaps I could answer the question in relation to some general features of sharing experience, but in each case they do affect a quite wide range of activities, so they cover the science and technology activities as well as others. Donor agencies are all members of an OECD organisation called the Development Assistance Committee. This has its secretariat at the OECD in Paris. This organisation provides a platform for regular discussion between aid agencies on all aspects of development assistance and is a place where we exchange experience, try to develop common understanding of problems and, indeed, in some areas have managed to draw up agreed guidelines for approaching particular kinds of issues. That is an important part of the sharing. Other places where experience is shared are in multilateral institutions and the meetings that go into formulating their programmes which we hope to inform by our own bilateral experience as well as learn from them in their multilateral experience. We also have meetings in each developing country between the people who are trying to manage programmes in those countries. Co-ordination of aid is often at sectoral and project and programme level, so that we are trying to gain from each other's experience there. There are other meetings of experts who are called together under special international programmes. For example, there is an FAO Tropical Forest Action programme. That is informed by periodic meetings of forestry experts for a two-way flow of information. The same thing has happened on the United Nations water decade, for example; water engineers have come together in the same way. Much of that is international. There is a process by which, mainly through DAC, we have formalised the exchange of evaluation results; that is, each donor has evaluated what it has done in particular areas, written a report about it, and the lessons learned from it are exchanged by this means. In the area of the NGOs themselves, I am not sure I can give you a good answer as to how they co-ordinate in specialised fields, but certainly there are networks by which the NGOs and specialists within the NGO organisations exchange experience and views. I am not familiar with the particular organisation you mentioned, so I do not know whether British NGOs are members or have thought about being members of it or would find it useful if they were.

Earl of Ilchester

33. In this exchange of ideas and information between participants in STA, are there any areas which are kept under wraps in any shape or form which you would not wish to divulge to other countries? Or is everything open and above board?

(*Mr Ainscow*) Our general approach to the work we finance is that we are in the business of generating knowledge and information which, if it is to have an effective impact, must be widely available and widely

used. The most effective way of doing that is to make it freely publishable. That is our general policy.

Chairman

34. So by and large are you satisfied with the co-operation between different countries that provide that kind of aid to avoid overlapping, or on the other hand to avoid gaps? Or do you think there are ways in which that sort of co-operation could be improved, and therefore get better value for money spent?

(*Mr Ainscow*) I think, My Lord Chairman, it is a very complex process. There are so many parties in this endeavour. We have come a long way in the last ten years or so in improving the degree of collaboration and co-ordination. That does not mean to say that there could not be a lot more progress, and we could get better at it. The mechanisms could no doubt be developed further, and the attitudes of some could be improved in this regard. I would add that the process of co-ordination does take time and requires resources itself. It can easily be felt on the part of very pressed people that they need to get on with the job they are trying to do, and stop talking to other people about how to do it.

Lord Perry of Walton

35. Are we competing with other countries to be the ones that give bilateral aid? Or are we ducking out and trying to get other countries to do it for us? In other words, do we see an advantage in being the donor in a bilateral arrangement with a country, or a disadvantage?

(*Mr Ainscow*) We see and the Government sees very considerable advantages in bilateral aid. It clearly creates a much more direct relationship between the UK and the recipient country than does multilateral aid.

36. I really meant commercially.

(*Mr Ainscow*) Commercially I think you have to take a balance of considerations. I think the figures I gave you earlier show that the multilateral aid system, which only survives if people are seen to be bearing what others regard as a fair share of the burden, actually has consequences that are helpful to the UK economy. In the case of bilateral aid, much of the British aid programme is tied to UK goods and services, so it is not available for other developed countries' goods and services. In that sense it helps create orders.

Baroness White

37. Do you feel we are spreading ourselves too widely, and that it would be advisable to have more closely defined spheres of influence?

(*Mr Ainscow*) It is certainly the case that we give aid to a very large number of countries. I think that on the last count we were giving bilateral aid to something like 126 countries. Other major donors give aid to not dissimilar numbers. A great many of those are very small programmes, of scholarship schemes, or English language training, technical co-operation, activities of that kind. The bulk of the aid is actually concentrated on something like 20 or 25

1 March 1989]

Mr R M AINSCOW, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY

[Continued

[Baroness White Contd]

countries. So in the geographical sense, while there is clearly a long tail, there is a focusing and concentration in terms of the major endeavour. In terms of the fields that we are assisting, I do not think we would take the view that we spread ourselves too thinly. We try to guide our activities by looking at the individual country, discussing with them what their priorities are and what their needs are, looking at what they can do themselves, looking at what other donors are doing and what the international organisations are doing, and looking at what we are best equipped to do.

38. We look at the matter functionally nowadays, I should imagine, rather than historically?

(Mr Ainscow) We certainly bear very considerably in mind the Commonwealth connection, which is essentially an historical one.

39. I wondered about that. I was the last ever Parliamentary Secretary at the Colonial Office. That is a very long time ago. One wonders whether any vestigial loyalties still operate.

(Mr Ainscow) I think that the Commonwealth relationship is important in affecting which countries receive significant amounts of aid. The Commonwealth relationship is also important in providing conditions in which we can be more effective as an aid donor, because there is, in some cases apart from the common language, some commonality of institutions. There are often people who have been trained in Britain who are the opposite numbers of our own staff. So the circumstances are usually much better for effective aid programmes.

40. There is still, in other words, an element of mutuality about it?

(Mr Ainscow) Yes.

Chairman

41. Are there any discernible trends in Commonwealth countries' requirements, when you discuss it with them? Are there any discernible trends of different kinds of aid that the countries are looking for now compared to what they were ten years ago, or what you expect them to be looking for in the next five or ten years?

(Mr Ainscow) I think there are some, Chairman, that one can point to. In the last few years, there has developed a common understanding of the development needs of many countries. The kinds of features I would draw attention to would be a general acceptance that the policy framework within which aid is being made available, that is the developing countries' policy framework, is of key importance if help given by donors to projects or institutions is going to succeed.

42. You mean the local framework into which the aid is given?

(Mr Ainscow) The local policy framework. The second thing would be the importance of strengthening local institutions, especially in the poorest countries, and to provide a package of assistance which will lead to sustained improvement over time. I think the third thing I would select would be the

importance of sustainability in the widest sense. Clearly this applies in the case of the environment, but it also applies more widely, I think, in relation to the finance that needs to be available on a sustainable basis if things are to be accomplished, the institutions that need to sustain themselves, and the people who need to be available over time. Perhaps the fourth thing I would choose is that in certain fields, particularly those where we are researching new issues or long-recognised problems, or where we are trying to implement things where the co-operation of significant numbers of people is required, that we should approach this by designing and implementing what we do in a flexible way, with scope for review and change. In other words, we should see it as a process rather than trying to define a cut and dried plan at the beginning and trying to stick to that in order to meet initially identified targets, or financial constraints, or some other constraints. I think those four perhaps are important.

Baroness White

43. Where co-operation by people is concerned, perhaps Mrs Kelly could enlighten us? Population problems are acute in a number of the countries that we are considering. My admittedly limited experience in Africa and Asia leads me to suppose that people co-operation in that particular sphere is both extremely important and far from easy. Would you respond to that?

(Mrs Kelly) I think you are perfectly right, but there have been fairly fundamental strides made in that area in the last five years certainly. Much of it has been done through the multilateral organisations, because they obviously have a particularly important role to play if you are dealing with sensitive issues like population. The UN Fund for Population Activities, and the International Planned Parenthood Federation, which is in fact the largest NGO operating in the development field—it is a Confederation of National Family Planning Association—have done much to raise awareness of the problem of population. Starting 15 or 20 years ago, they have helped people and policymakers in not just the developing world but also the developed world to understand how population growth affects economic planning and sectoral planning for example in the education system, and what it means to individual people and families. I think there has been a lot of progress, as I have said, and there are now perhaps only one or two countries that still have a pro-natalist attitude. I am thinking perhaps more of the African countries who have come more recently to appreciate the problems posed by population growth. Certainly the Sub-Continent countries now accept that population is a crucial issue for them and they are beginning to try to develop their own expertise in that field. There are some significant signs that there is good research being done in the Asian region. In Africa the situation is a little different. There are major plans or major activities afoot to try to look at Sub-Saharan Africa and to see in particular how one can move forward the implementation of population programmes there, both by working with policy-makers

1 March 1989]

Mr R M AINSCOW, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY

[Continued

[Baroness White *Contd*]

and working with communities. That exercise is being led by an international consortium of the World Bank, the World Health Organisation and the UN Fund for Population Activities. So I think the case for population programmes is made. It is less easy to see how the implementation of the programmes is going forward, and I think there is some very fundamental research that the UK has done in that field that has been rather important. Some of the techniques for measuring population growth have been developed in the UK and are now being used specifically to evaluate family planning programmes.

Baroness White

44. Are you able to secure any co-ordination between social policy in more general terms and physical family planning? In primitive societies very often having children is regarded as a form of insurance.

(*Mrs Kelly*) Therein lies the difficulty of moving forward. It is an area where a lot of research is being done at the community level, but it is a difficult area for donor agencies, because you need to use local researchers to do it. The international population organisations and bilateral donors are beginning to look at ways of working inside the social sector subjects such as education, rather than concentrating solely on vertical population or vertical family planning programmes. Understanding the reasons why people have children and the determinants of fertility is crucial to this and has been a major research task over the past few years.

45. But it has been known for at least 20 years that this was the major point, has it not?

(*Mrs Kelly*) It has been known as ever, but it is very difficult to know what to do about it. More work needs to be done on why people want large families. Some of it is insurance, but actually there are some societies where people simply want large families.

Baroness White] I mention this because it really is crucial, otherwise you can go on spending money and effort and find yourself standing in the same place or even slipping backwards. I am much concerned about this. In this country, as you know, social science is under somewhat of a cloud, and I am just wondering whether on the international scene it is given perhaps a little more resources and respect.

Chairman

46. Would you regard this as an absolute priority area, for the reasons Lady White gives?

(*Mr Ainscow*) Yes, my Lord Chairman. If you were to read—as I hope you shortly will be able to—the speech the Minister gave last night in Cambridge—

Baroness White

47. May we know to which Minister you are referring?

(*Mr Ainscow*) I am sorry. It is the speech Mr Patten gave last night in Cambridge in relation to environmental concerns, to the effect that one of the

fundamental points we recognise is that of population growth. The way in which one can tackle that is still causing difficulties in many places. We have tried a number of approaches some of which have been more successful than others. On the whole, one does not get very far in a number of countries by tackling it head on and suggesting this is all about contraceptives and the mechanics of birth control. On the whole, we get further by seeing it as part of an endeavour to improve the health of people, of mothers and of children, and helping more children survive is seen as one of the most important ingredients in convincing people that they can afford to have fewer children.

Chairman

48. Of course, in the early stages that can make the matter worse, can it not, because you have large families and they all survive? It is a brutal way of saying it, but that is very often the fact, is it not?

(*Mr Ainscow*) I think that if we are looking to history, my Lord Chairman, we have seen situations in which the initial impact may well have that as an important feature where larger families begin surviving, but that in due course there is a reduction.

49. Do you feel that you have enough funds for this, or that the problem is more of finding the best way to tackle the problem rather than a shortage of funds to tackle it? Would that be a fair point?

(*Mr Ainscow*) On the whole, I think that is right, if one is talking about looking at the population problem as a rather separable issue. However, we relate it rather to the issue of development as a whole; that the better off people become, the healthier they become, the less likely they are to want and need very large families. That is related to finding ways of creating economic and social development which puts them in that position of being better off and healthier. That requires considerable resources.

Baroness White

50. Perhaps I might ask another question on the social side. How far is there still a continuing problem of people from rural areas coming into the towns, and the rural areas being to some degree neglected and the towns being overcrowded and underprovided with services?

(*Dr Healey*) If you look at the statistics on urban growth, the bulk of the increase—which is quite substantial—comes from the natural increase within the towns themselves rather than from migration, though there is still a movement towards the towns. In terms of neglect of rural areas versus urban areas, I think the pattern there depends on which parts of the world you are looking at. If you are looking at India I do not think most observers would see the rural areas as neglected, perhaps for political reasons they have always been fairly supported in terms of adequate finance and adequate prices for farmers and so on. You might even say in Asia, and particularly in India, that you have a rather acute urban problem. In Africa the rural areas were to some

1 March 1989]

Mr R M AINSCOW, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY

[Continued

[Baroness White *Contd*]

extent neglected in the 1960s and 1970s, with the rather excessive concentration on serving the interests of the towns. That has been rectified quite considerably within the 1980s. For example, increased prices for farmers have meant that the rural areas are better off and the urban dwellers are rather squealing from the higher prices they have to pay for food.

51. Have considerations of this kind entered at all into your aid programme thinking?

(*Mr Ainscow*) Certainly the question of how we help communities both in the rural and urban areas, and the question of how we can find ways of helping the extremely rapid growth of population in the urban areas, with the weight that does put on all kinds of services, much of our aid programme is spent on things like infrastructure, which services both urban and rural areas. So far our direct assistance in the urban areas has tended to focus on infrastructure and slum upgrading. We have tried to avoid getting into areas such as middle income housing or office building, or other kinds of structures.

Chairman

52. You have mentioned some important trends. Have you identified any science and technological trends of different types of disciplines becoming more or less important? You have concentrated in your paper, on civil engineering, for instance, as being a very important element, for water supplies and the like.

(*Mr Ainscow*) Could I ask one of my professional colleagues to answer that, my Lord Chairman?

(*Mr Pike*) Certainly I can address the problem of the importance of civil engineering. Clearly in the provision of basic infrastructure, civil engineering has always been of great importance. We have seen some trends emerging. We have already mentioned the problem of urbanisation. That has been an increasing difficulty, which in itself brings particular problems to water supply and sanitation, for example. Those are areas which we have tried to address in our research programmes. There are particular scientific trends also in relation, for example, to the advent of reliable electronic control systems, which are now starting to impinge upon our thinking in the supply of appropriate technology to the developing world. The definition of "appropriate" that is applied to developing countries must be reviewed constantly. What would have been seen as over-sophisticated some years ago is now becoming very relevant. In general, I think it is fair to say that the basic forms of civil engineering still remain, within the sectors which I deal with, the primary consideration.

Chairman

53. The other point you mentioned, I think, was the point about sustainability. Did you mean mainly sustainability from the point of view of funds being available on a long term basis, or sustainability in the sense that ideally, I imagine, you would like to see projects you start becoming self-sustaining in the

countries, rather than having to be aided continuously?

(*Mr Ainscow*) I think, my Lord Chairman, I was trying to capture all of those things in the context of sustainability. It is, we are increasingly finding, a very useful way of seeing a great many of the problems of the poor countries. If you test proposals with the criteria of sustainability, you have to answer a great many questions, and often quite awkward questions, first. If we are, for example, endeavouring to deal with health systems, sustainability has something to do with whether it is replicable widely across a country which is poor and is likely to remain relatively poor for some time, therefore finance is a key consideration as to whether you can sustain the system that you have created. Sustainability also requires a supply of trained people to ensure that it continues. That involves maintenance of the capital stock of the buildings that you are using for providing the service, an area which in many poor countries is much neglected. Sustainability of course also takes you very usefully into the area of the physical environment, and whether what is being proposed in relation to productive systems can be sustained over a long period of time given the natural resource base from which they are drawing.

Baroness White

54. Are there any major problems of that kind? The rain forest is the most dramatic one in certain parts of the world. Are there any particular physical or environmental difficulties of comparable nature that you have come up against?

(*Mr Bennett*) Obviously one of the issues that is of macro and global interest is that of global climate change, and the possible implications this holds; we are at the moment still very much in a state of trying to model what might happen. There are various gloom and doom projections, and there are some projections which are easier to cope with than others. Obviously global climate is one of great concern, because that basically influences the productive base and precipitation in various parts of the world upon which a lot of life is based. The other environmental issues are more localised, but nonetheless important when one comes to look at the problem of sustaining yields of food crops where it may be possible with high levels of fertiliser and introduced varieties, and considerable use of agrochemicals, to sustain a reasonably high level of production. However, in some areas these materials are not available. Therefore, we must use technologies which are more robust and less demanding of exotic inputs. So again one's interest there starts to focus on the possible use of biotechnology as a means to bring about more sustainable farming systems.

55. Possibly more desirable?

(*Mr Bennett*) One hopes they will be more sustainable and desirable, yes, indeed. This is an area of research; so environmental aid is through many things. Fishing is another area where obviously the fish resources, the state of the reefs, and the interaction between reef and mangrove swamp, while

1 March 1989]

Mr R M AINSCOW, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY

[Continued

[Baroness White *Contd*]

people saw them as separate, when you actually look at the way in which life forms build and develop, you find that there are linkages which had previously not been recognised, but when you put a system under stress, they start to show up very starkly. Therefore, there is a greater need to look at action and reaction over a wider range.

56. How far are you able to involve local research workers and others not perhaps so much in the global climate—I should have thought the developed countries ought to take that on board—but some of these other problems? Can you secure a sufficient local input to leave behind people who can continue the process of either monitoring or developing policies or techniques?

(*Mr Bennett*) Indeed, we do. That is an objective that we try to attain in that there is no point in doing it once off if you do not leave behind some of the institutional capacity to continue with it. If I may make a point on global climate change, we are keen that Third World scientists are, where possible, involved, simply because when one comes up with the solutions there will be a greater feeling of having been involved, and perhaps less suspicion of the outcome, that it is one part of the world telling another part of the world what they might do. So we have in process discussions on ways in which we might involve Third World scientists in some of these more important international issues, so that they can feel part and parcel of the results. As you rightly point out, one first needs the people with whom one can deal. Obviously bringing people to the UK under training, and having collaboration with institutions overseas, from link arrangements, is a very important element in the sustainability of the science and the generation of research results.

Chairman

57. Thank you very much. Perhaps we could move on now and try to look ahead. How do you expect the needs of developing countries for STA to develop in the future? What do you feel about our abilities to meet those needs as they change, as you see them? Are the funds going to be available to do what you think is going to be necessary, or are you worried on that score?

(*Mr Ainscow*) My Lord Chairman, in this field we would see the future needs, as far as we are concerned, as being heavily influenced by the fact that local educational systems have expanded. A lot of people have now been trained and educated to higher levels. We therefore see a lower demand for general assistance and for generalists to assist. Some of this is already seen in the reduction in the number of what we call supplementees whom we have had overseas over the past 15 to 20 years. Those have reduced considerably. We also have economies which are growing more complex. The developing country economies are growing more complex, and specialist help is certainly needed. This applies to almost all sectors, whether you are talking about agriculture and natural resources or infrastructure

or health or finance or management. The more specialist the resources, the better they can serve the local needs. The way we trust we will continue to make it relevant is that we are taking a country-by-country approach to this. It is the very heart of the system we try to use to allocate resources. We would expect to assess the needs of a particular country and then bring to bear the various forms of aid which we are able to provide, to focus on the problems identified. We feel that we avoid the problems of some other agencies who have tended to cut up their aid programme in particular forms of aid and therefore can operate less flexibly. We integrate at the country level and so we find ways of combining the specialists, the institutional links and the consultancies and the equipment supply.

58. Going back to an earlier point we discussed right at the beginning, do you often or sometimes have arguments with the country, in that they see one particular need and you feel they have not got the infrastructure or the trained people in order to take advantage of the aid in that field? Does that sort of argument often come up?

(*Mr Ainscow*) That kind of debate and discussion is going on a great deal of the time in most of our countries. The people we have on the front line are, and we expect them to be, knowledgeable about the institutions and the sectors in which we are making aid available. They, of course, have their own views on what the needs are. It is usually possible to reach agreement with the local authorities, and a common view is usually found at the end of what is usually a productive debate.

Lord Thurlow

59. Is it the case that there are no areas that in principle we are not prepared to give help in, and where we are completely open, or are there some areas which, as a matter of policy or principle, we are not prepared to go into?

(*Mr Ainscow*) I think the approach we have taken on this is that the UK is a pretty sophisticated economy and society, there is a strength in both breadth and depth in expertise and there is a great deal of interest, among institutions and individuals, in developing countries. We have found it quite difficult to decide that there are certain areas where the UK is simply unable to provide anyone who could help in this particular field in poor countries. There is sometimes a limit on the numbers of people who are available or on the time they are available. That can limit what we can do to respond. I think there are probably one or two specialist areas where we suspect we could not provide very much domestic expertise. When we were reflecting on this we identified things like geothermal energy, for example, where there is little domestic expertise developed, or certain aspects of growing paddy rice, for example, or certain aspects of grazing animals in arid high altitudes, where we have limited experience. In other areas, however, not only do we have enough experience to meet the ODA's wish to provide this, but we are supplying it through the international

1 March 1989]

Mr R M AINSWORTH, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY

[Continued

[Lord Thurlow *Contd*]

institutions and, indeed, we are supplying it in response to some other bilateral donors' programmes.

60. How far, in looking ahead, do you see the current pressures on resources for institutions, especially in the research field, reducing our capacity to respond and find the right kind of people? Do you see our capacity as being limited, as the heat gets stronger on universities and research?

(*Mr Ainsworth*) I find that a very difficult area to reach a view on at the moment. There are a number of strands to this. It is undoubtedly the case that with regard to the people who served in the developing countries when they were colonies and continued to serve after independence, many of them are now reaching the point where they retire. There will, I think, be a reduction in the numbers of people available with that kind of background. We have over time tried to sustain the level of these people with overseas experience by various means, by various ODA-financed scholarships and study programmes for UK people who would serve overseas in this way. Increasingly we are seeking ways of financing research work by financing particular programmes and particular programmes of research. So far I think it is fair to say that we have found ways of using and committing most of the funds we have available with good research organisations and institutions in the UK. That has not been an issue. We are, in various fields, working hard to clarify our own strategy. In the area, for example, of the natural resources work we are devising a natural resources research strategy which we will discuss widely with the UK institutions and by that means indicate the fields we expect to be involved in over quite a long period in the future. We hope this will be useful guidance for them in terms of what capacity *they* decide they wish to retain.

61. Will this be a public document?

(*Mr Ainsworth*) It still has to go to the Minister—that is, Mr Patten—and it will be subject still to his views on whether he feels we have got this right. I would expect this to be widely available, because it will be the basis for discussion with the universities and research institutions.

Baroness White

62. Do you have hindrances in terms of commercial exploitation and more particularly with patent rights and the like? Do you find that they are a hindrance in certain situations, or do you not really have much concern with that?

(*Mr Ainsworth*) We have started from the general principle that the work we are financing will have the most effective impact if it is widely and freely available. There are, however, one or two circumstances in which it has been judged that the particular product will be made more widely available in more usable form if there is a commercial interest ready to take it up, and that commercial interest has usually been interested in having the patent associated with it. So there have been one or two occasions when

patents have been considered and sought, but it is not a major element of our activity.

Chairman

63. Could you give us an example of that?

(*Mr Ainsworth*) I will have to ask my colleagues, my Lord Chairman.

(*Mr Pike*) We have had little use of the patent mechanism in the engineering field, I must confess, because we have found it, as Mr Ainsworth said, to be a deterrent to wide dissemination. We use licensing arrangements in order to secure proper marketing, but I have no instances of specific patents having been taken out on mechanisms or research work that we have undertaken. We do use licensing arrangements where appropriate in order to safeguard the marketing and dissemination of equipment and knowledge.

Earl of Ilchester

64. In cases where there is a suspicion that agreed aid is being or might be diverted to other purposes like military purposes, for instance, is that a reason for not responding to the aid requirements of a particular country?

(*Mr Ainsworth*) That would certainly be one of the factors taken into account in making the judgment.

Chairman

65. How do you judge the balance between training local people and getting the operational task achieved? Developing capabilities is something which you have stressed very much in all that you have said, and that to some extent must slow up actually getting something done that you want to see achieved, because you have to train people first to do it locally?

(*Mr Ainsworth*) May I answer in relation to what we have been broadly calling "technical co-operation" in the science and technical fields, rather than in relation to large infrastructure projects or engineering projects, where a somewhat different set of considerations tend to be brought to bear?

66. What do you call large?

(*Mr Ainsworth*) If we are talking about building a large road, or a large dam or a power plant. The kind of technical co-operation we give, and where we are going to make it available, results from a joint assessment we make with the country on where there are gaps in the local capacity, both in terms of people and in terms of institutions. It is usually a shared aim of both ourselves and the recipient authorities, that we are only providing this expertise where there is no local source available, or there is insufficient strength in the institution. There is room for different views in making that assessment, and a discussion often has to ensure what we are doing moves forward according to a reasonable timetable, and at the same time what we are doing actually gives the local people and institutions experience of doing it, so that they are in a position subsequently to do the same things themselves with less or perhaps no assistance.

1 March 1989]

Mr R M AINSWORTH, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY

[Continued

[Chairman Contd]

67. So you put a lot of importance on that aspect?

(Mr Ainsworth) We do, and there is a balance to be achieved between the two proposals. What we have tried to do more in recent years is not to focus on particular individuals or filling particular posts, but to try and understand better the institutional context and framework in which we are supplying them, so that the people we put in strengthen the institutions, which though, of course, are made up of people. If we have an understanding of how an institution is working, it tends to be more sustainable than having simply an individual counterpart, who may or may not stay subsequently in the post for which he is trained. Very frequently people move on and move posts quite quickly in developing countries. So that projectising and that institutional focus, we have felt have been important elements in trying to provide this assistance.

68. I would just like to ask a very broad question. Could you give us any picture of your overall view of how successful aid has been, over the last five years or so, or ten years, that you have been involved in this, the economic effect? You said at the beginning that what you were trying to do was to help the economies to grow in a sensible way in these countries that we help. Could you give us any overview of how successful you think the money spent has been in that way?

(Mr Ainsworth) That is a very demanding question, my Lord Chairman.

69. Perhaps you would like to give us a written answer to that?

(Mr Ainsworth) I could start by pointing to a very substantial study which was undertaken quite recently and published about two years ago, called "Does Aid Work?".

70. That, I gather, is not only about UK aid. Really our concern is UK technical aid.

(Mr Ainsworth) We can certainly provide some views on that, my Lord Chairman.

71. I think that would be useful to get some sort of view as to what the outcome seems to have been for the principal objective of all this work which, as you say, is to help the economy of these countries to grow?

(Mr Ainsworth) Yes. perhaps it is worth mentioning, my Lord Chairman, that Mr Patten has decided that this year the Department will publish as its annual report a substantial retrospective of how we feel we have managed to succeed, and in some cases not succeed, over the past 25 years. This year is the 25th anniversary of the creation of the Department.

72. Is it? I did not know.

(Mr Ainsworth) We expect to be making that available in the middle of the year, I think—in June.

Chairman] That would be very helpful, because it would be in time for us to consider.

Earl of Ilchester

73. My Lord Chairman, in assessing the question as to the success or otherwise of our own programme, is there any information from other major developed countries, such as America, to provide some sort of comparison?

(Mr Ainsworth) The book I referred to "Does Aid Work?" does attempt to make such a comparison across a number of developed countries, across a number of developing countries, between various forms of aid, between multilateral and bilateral aid, and between technical co-operation and financial aid. So it is the best available piece of work on comparative assessment and trying to answer the question of whether concessional aid does in fact have the results that were intended. I would add that its conclusion is that on the whole it does.

Chairman] One last question. Supposing you had another £5 million allocated to you, where would you see it best spent? Where would you like to see additional effort put in to meet your overall objectives?

Lord Taylor of Blackburn

74. Do not all rush in!

(Mr Ainsworth) I think it rather depends a little, my Lord Chairman, on the situation at the time. We are often under enormous pressure from emergency situations. That is the situation we face now in various countries.

It is very difficult at the moment not to see the needs of a number of African countries, in terms of the general structural adjustment programmes that they are trying to undertake, as not having a very high priority. Of course, £5 million is not an awful lot of money in relation to some of those problems.

Baroness White] Then double it!

Chairman

75. Make it £10 million.

(Mr Ainsworth) The aid programme is now growing in real terms, and has been growing in real terms since 1982, so that the ODA faces this issue year on year.¹ I think that the decisions, as it were, speak for themselves as to where the resources have gone. Ministers in general have taken the view that, where they can, they wish to increase the bilateral aid programmes. There has been a lot of emphasis on country programmes and there has been a lot of emphasis on the situation in Africa.

Lord Thurlow

76. When you say that the programme is growing in real terms, is this a trend that you foresee projected into the future? I looked through the figures for the projection up to 1992. As a layman, it seemed to me that if you allowed for what seems to be the likely

¹Note by the witness:

The aid programme was broadly constant in real terms between 1982–83 and 1987–88; it has been growing in real terms since then.

*1 March 1989]*Mr R M AINSCOW, Mr A J BENNETT, Dr J M HEALEY,
Mr T D PIKE and Mrs B M KELLY*[Continued**[Lord Thurlow Contd]*

level of inflation, there was not going to be any growth in financial terms at all.

(Mr Ainscow) We have, of course, to take a view of what the general inflation rate might be. On the basis of the present prospects, as explained by the Government in the public expenditure material, the financial provision made in the public expenditure system for the aid programme would see it maintaining a small real increased growth.

Lord Taylor of Blackburn] There are one or two of us who do not accept this concept that it has grown in real terms. There are one or two of us who feel that if we looked at the graph, and on the evidence we have, it has gone down a bit. However, it is

too late in the day to start arguing this, my Lord Chairman.

Chairman

77. Are there any other points you would like to make to us, Mr Ainscow?

(Mr Ainscow) I do not think so, my Lord Chairman, not for myself.

Chairman] What we would like to do is to ask you if you could kindly answer a few other questions which we will give you in writing. It is a very very big subject, and I think we are all impressed with that. In the meantime we are most grateful to you, Mr Ainscow, and your colleagues, for answering our questions so clearly. Thank you very much.

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SCIENCE AND TECHNOLOGY
(SUB-COMMITTEE I)

Wednesday 22 March 1989

BRITISH COUNCIL

*Mr Richard Francis, Mr Brian Vale, Dr Gareth Howell, Mr Howard Thompson
and Dr Neil Kemp*

*Ordered to be printed pursuant to the Order of The House of Lords of
29 November 1988*

LONDON

HER MAJESTY'S STATIONERY OFFICE

£5.90 net

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Perry of Walton, L.	Thurlow, L.

Memorandum by the British Council

ABBREVIATIONS

ADB	Asian Development Bank
ALCS	Academic Links with China Scheme
ATP	Aid Trade Provision
BC	British Council Visitors and Fellowship Schemes
BPP	Book Presentation Programme
CAU	Commonwealth Awards Unit (British Council Fellows and Scholars Department)
CICHE	Committee for International Co-operation in Higher Education
CFT	Client Funded Training
EC	European Commission
ELBS	English Language Book Society
FCOSAS	Foreign and Commonwealth Office Scholarships and Awards Scheme
HED	Higher Education Division (British Council)
ILA	International Lending Agency
IUC	Inter-University Council
PES	Paid Educational Services
SERC	Science and Engineering Research Council
SSTC	State Science and Technology Commission (China)
TCTP	Technical Co-operation Training Programme
TETOC	Technical Education and Training Operations and Consultancies
UN	United Nations
VIS	Visitors Department (British Council)

1. THE OVERALL CONTEXT

1.1 THE BRITISH COUNCIL

1.1.1 The British Council promotes Britain abroad. It is Britain's principal agent for cultural relations overseas. The Council is an independent, non-political organisation managed by a Director-General working to a Board. Currently represented in 82 countries, it provides a network of contacts between government departments, universities and professional and business organisations in Britain and around the world.

1.1.2 The Council creates an understanding and appreciation of Britain's achievements, and its potential as an international partner, by providing access to British ideas, talents and experience. It has five main activities:

- helping people to study, train or make professional contacts in Britain, and enabling British specialists to teach, advise or establish joint projects abroad;
- promoting British education, science and technology;
- teaching English and promoting its use;
- providing library and information services;
- making British arts and literature more widely known.

1.1.3 The British Council's annual turnover of £312 million (1989-90 estimate) can be divided into two:

- British Council programmes (50 per cent of turnover) which are run in accordance with the policies of the Board and are funded partly by government grant (£88 million) and partly by the Council's own earnings (£68 million);
- British government programmes, principally in training and education, which are managed by the Council on behalf of the Overseas Development Administration (£141 million) and the Foreign and Commonwealth Office (£15 million).

*22 March 1989]**[Continued*

The Council's turnover has increased almost every year over the past decade and is now 25 per cent greater in real terms than in 1978–79. This has been achieved mainly by an expansion of work on government programmes, and by increased earnings.

1.1.4 The British Council has 138 offices, 116 libraries and 52 English teaching centres in 82 countries, 53 of which are officially classified as developing by the World Bank. In addition, it carries out work on behalf of the ODA related to a further 55 developing countries in which it is not represented.

1.2 THE ROLE OF SCIENCE AND TECHNOLOGY

1.2.1 As an integral part of contemporary British culture, science and technology is seen by the Council as a crucial component of its work in all the countries, developed and developing, in which it operates.

1.2.2. Developing countries have shown a consistent interest in science and technology as a means to aid their economic growth. They seek not only the transfer of technology from the developed world, but also the development of their own manpower resources in science and engineering. Our high international reputation in this field has meant that nearly all developing countries give a high priority to bilateral assistance from Britain in science and technology.

1.2.3 In assessing the appropriate nature and level of assistance to developing countries, the British Council and the ODA take into account local needs, demands and possibilities as well as broad British interests. The local context therefore determines the part played by science and technology in the Council's work in any given country. Section 2 of this memorandum discusses in detail the available mechanisms for such work, and Section 3 examines the application of such mechanisms in four countries: China, Indonesia, India and Kenya.

1.2.4. The structure of the British Council has been carefully developed over the years to enable it to perform the role of an aid agent, whether in its own right or on behalf of other bodies, and to respond quickly to changing circumstances both in Britain and abroad. Its network of overseas offices gives it the capacity to advise on or develop aid strategies appropriate to local conditions; to maintain close contact with host governments; and to harmonise a variety of scientific and technological inputs within the context of HMG policy (as expressed by the Foreign Office, the ODA and British commercial interests). Its administrative systems at home and overseas provide an effective delivery system for aid projects and programmes. Its contacts with and knowledge of UK science, technology and educational resources enable it to quickly identify the specialist components required by a technical co-operation programme. In short, the Council offers under one roof a complete system from identification, through implementation, to follow-up.

1.2.5 The bulk of the Council's work in developing countries is carried out on an agency basis for the ODA and, in some cases, for host governments in receipt of multilateral aid. This work concentrates on the provision of technical, scientific and administrative skills and, related to this, the development of indigenous capacity in key sectors such as agriculture, mineral exploitation and transportation.

1.2.6 Concurrently, the Council uses its government grant to establish, maintain and develop local educational resources such as science libraries, science and technology teaching in secondary schools, distance teaching programmes and inter-university links. It is these resources which will ultimately provide the manpower capable of applying the technology being transferred from the developed world.

1.2.7 Newly industrialising countries need more sophisticated transfers of technology to stabilise and give critical mass to their scientific manpower resources. The Council's work in such countries is less dominated by aid and based more on the development of partnership opportunities with British commerce, industry and higher education on a country-financed or cost-shared basis.

1.3 THE BRITISH COUNCIL'S SPECIALIST STAFF

1.3.1 The Council employs London-appointed science-qualified staff in 32 designated specialist posts in London and overseas. Of these posts, 14 are in developing countries (see Annex 3). There are in addition many generalist posts overseas filled by science-qualified staff. These specialists build up a comprehensive knowledge of the local scene, establish close links with the indigenous scientific community and liaise with diplomatic colleagues, ODA specialist advisers and the staff of local offices of the major international development agencies.

1.3.2 In London the Council has 16 specialist advisers, responsible for various aspects of science, technology, engineering, agriculture and medicine, who maintain close contact with the science and technology community in Britain. Four specialist Advisory Committees in Science, Engineering and Technology, Medicine and Agriculture and Veterinary Science play a key consultative role; their current membership is given at Annex 4. The Council also maintains a comprehensive database on available UK resources.

22 March 1989][Continued

1.4 AGENCY WORK

1.4.1 Much of the Council's science and technology work in developing countries is carried out on behalf of the ODA, according to the policies and objectives contained in the ODA's memorandum to the Committee. The Council is therefore the implementing agent for the Schemes and Programmes described in Annex 6, *Education and Training*, of that memorandum. These are:

- Technical Co-operation Training Programme;
- Commonwealth Scholarship and Fellowship Programme;
- Sino-British Friendship Scholarship Scheme;
- Low-Priced Books Scheme;
- Book Presentation Programme;
- Aid to English Language Teaching;
- University and Polytechnic Links;
- Projects in Science and Technology.

The ODA is in the process of converting many of its rolling programmes of manpower development assistance into more focused and time-bound projects, and the British Council is undertaking matching adjustments to its own structure and working methods.

1.5 USE OF GOVERNMENT GRANT

1.5.1 In many developing countries the Council's government grant—as distinct from agency funds—is modest. The grant is used principally:

- to pump-prime co-operation that may later attract more substantial bilateral or multilateral support;
- to fill obvious gaps which cannot be covered by the aid programme;
- to co-fund activities with host countries.

1.5.2 In science and technology the Council attaches particular importance to the development of institutional links. The mutual support and commitment arising from an established long-term relationship between two partners, whether at institution, faculty, department or research group level, has been shown to provide benefits out of proportion to the often modest financial resources required. Since the work of the Inter-University Council (IUC) was incorporated into the Council in 1981, funded by a special grant from the ODA, the development of such links has greatly increased; the great majority are now in scientific and technological disciplines.

1.5.3 Although most of the Council-supported links are relatively small-scale and tend to benefit individuals, research groups and single-focus laboratories, they can of course be expanded to include major institution-building projects.

2. COUNCIL-MANAGED SCHEMES AND PROJECTS

2.1 INTERCHANGE AND ACADEMIC LINK SCHEMES

2.1.1 *Interchange Schemes*

2.1.1.1 The Council administers a large number of interchange schemes as the agent of other bodies—principally ODA and FCO—who retain policy direction. The Council's contribution to these schemes is to provide management and administrative services and a sensitive system for identifying and responding to overseas needs.

2.1.1.2 The principal schemes for inward visits are listed below. The figures refer to numbers of trainees and overseas visitors in Britain in 1987–88:

- The Technical Co-operation Training Programme (TCTP), funded by ODA, promotes the transfer of skills for social and economic development (11,465 trainees of which 6,060 were in medicine, science and technology).

TCTP is the largest of the schemes administered by the British Council and accounts for almost two-thirds (61.4 per cent in 1987–88) of the trainees from developing countries handled by the Council each year. Training often includes industrial attachments organised by the Council's Industrial Training Placement Unit. Additional management training is also provided when appropriate via specially designed courses. The subjects of study for trainees in medicine, science and technology in 1987–88 can be further subdivided as follows:

22 March 1989]

[Continued

Medicine	1,069
Physical Science	730
Engineering and Technology	2,427
Biological Science	245
Agriculture	1,512
Mathematical Sciences	77
Total	6,060

Annex 6 provides a similar breakdown of the TCTP subjects of study in 1987–88 for the countries discussed in Section 3 (China, India, Indonesia and Kenya).

- The Foreign and Commonwealth Office Scholarships and Awards Scheme (FCOSAS), funded by FCO, is designed to support Britain's diplomatic, cultural, developmental, business and trade related effort (892 of which 318 were in medicine, science and technology).
- The Commonwealth Scholarship and Fellowship Plan funded by FCO and ODA, with placement by the ACU is designed to encourage academic studies in Britain by Commonwealth citizens (1,283 of which 807 in medicine, science and technology).
- British Council Visitors and Fellowship Schemes, funded by the Council's government grant, enable the Council to provide individuals with a flexible range of financial and administrative support for anything from brief study visits to courses of academic study. (Eight hundred and forty Fellows of which 185 were in medicine, science and technology plus 1,624 short study visits of which 688 were in medicine, science and technology.)
- Client Funded Training (CFT) comprises a range of contracts negotiated with overseas governments and international agencies often against international competition. The direct costs of the training are provided by the client who also pays a management charge (2,805 trainees of which 1,697 were in medicine, science and technology).

2.1.1.3 Arrangements are also made for appropriate British specialists to undertake short professional visits overseas. Such visits can be advisory in nature or contribute to courses or seminars. They may also be related to academic or institutional links. With funding from the government grant and the ODA, the Council supported visits to aid-recipient countries by 1,216 specialists in 1987–88 of which 628 were in medicine, science and technology.

2.2 ACADEMIC LINK SCHEMES

2.2.1 The Council administers a range of programmes aimed at fostering co-operation between British universities and polytechnics and their counterparts in developing countries. Guided by the Committee for International Co-operation in Higher Education (CICHE) the Council currently supports some 360 collaborative links, more than 90 per cent of which involve areas of medicine, science or technology. These links, covering some 40 developing countries, are funded via a special ODA grant. In 1987–88 this provided for 401 link-related visits to Britain (251 in medicine, science and technology) in addition to 448 visits by British academics to institutions overseas (308 in medicine, science and technology). Links contribute to some or all of the following areas:

- Institutional development;
- Staff development;
- Institutional management;
- Training of technical staff;
- Course and curriculum development;
- Broadening research interests;
- Technology transfer;
- Research collaboration.

2.3 AID AND PES PROJECTS AND RELATED TRAINING

2.3.1 *Project Management for the ODA*

2.3.1.1 ODA-funded training compensates for general manpower shortages in science and technology in developing countries, sometimes responding to one-off needs. However, ODA's current policy is to concentrate aid into projects. Such projects are carefully formulated and require efficient phasing and integration of all project inputs. In recent years there has been a trend for the ODA to delegate the management of such projects to the British Council on an agency basis. In 1987–88 the Council disbursed more than £5 million on purely science and technology related projects on behalf of the ODA, and this is expected to increase in 1989–90. The objectives of each project are defined in an agreed "project framework" and "project memorandum". The Council provides a wide range of management services for project implementation at home and overseas and these include

22 March 1989]

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arrangements for training, consultancy and (usually in association with the Crown Agents) equipment provision, installation and commissioning. The Council is also well placed to assist ODA in the identification and design of projects.

2.3.2 *Paid Educational Services (PES)*

2.3.2.1 The Council furthers its objectives by securing educational and training contracts which cover their full costs. Since 1984 10 Science and Technology Projects have been implemented in 7 countries involving a total revenue of £13 million. Clients are principally overseas governments or government agencies using to loan or grant finance from multilateral development agencies such as the World Bank, Asian Development Bank and the European Commission. The British Council identifies project opportunities and competes for these contracts normally against international competition. If successful the Council then acts as managing agent drawing upon UK resources to provide the necessary inputs. The major PES projects in science and technology are currently located in Indonesia, Turkey, China and Egypt.

2.3.3 *Management for Engineers and Scientists*

2.3.3.1 Many of the trainees pursuing science and technology courses in Britain will return to positions with substantial managerial responsibilities. The Council has therefore organised a programme of short courses designed to give science and engineering students from developing countries basic grounding in management principles. So far 290 study fellows have benefitted from these courses which have been organised in collaboration with the Industrial Society and Industrial Training Service Ltd.

2.3.4 *Information Technology for Developing Countries*

2.3.4.1 In recognition of the need for improved Information Technology skills for many trainees from developing countries, the Council initiated a series of seminars which are held annually at the University of Kent, each for approximately 45 trainees, on the theme of "Information Technology for Developing Countries". Successive seminars have focussed on different aspects of Information Technology. The fifth in the series, which will be held in April 1989, will focus on the management of Information Technology and the introduction of new technologies into organisations.

2.4 LIBRARY AND BOOKS WORK AND INFORMATION SERVICES

2.4.1 *British Council Libraries*

2.4.1.1 The Council manages 116 libraries throughout the world, 72 of which are in developing countries. Council libraries frequently supplement the basic educational and/or public library services by providing services targeted at the student and professional population. In some newly industrialised countries, where indigenous services are being developed, Council libraries seek to respond to specific requests for information about British expertise. Everywhere the books, journals and other materials stocked by the libraries are selected to lend maximum support to the major Council programmes in the country. In Egypt, for example, there is a heavy medical and scientific bias. Elsewhere in Africa the books are chosen to support young Africans in full time higher and further education. In India libraries are closely targeted to the needs of professionals and postgraduate students. Annex 1 illustrates the proportion and use of the book stock given over to science and technology in the aid recipient countries described in Section 3.

2.4.2 *Information and Document Supply Services*

2.4.2.1 The libraries act as a channel for specially requested information from Britain. Requests for on-line searches in all fields of science, technology and medicine are provided in collaboration with the British Library. Other services of the British Library are also promoted such as the book loan and photocopy coupon service of the document supply centre. In 1987-88 the Council's sales of books of 20 coupons (currently costing £79) totalled 7,271.

2.4.3 *The Book Presentation Programme*

2.4.3.1 This ODA funded scheme provides books and other materials for presentation to institutions in countries where local resources are insufficient. Presentations are often made in support of ODA projects. In 1987-88 just over £3 million was spent on this work, of which just under a half went to presentations in medicine, science and technology.

2.4.4 *English Language Book Society (ELBS)*

2.4.4.1 ELBS (the English Language Book Society) is a subsidised tertiary-level textbook scheme funded by the ODA and administered on its behalf by the British Council. It makes available low-priced, unabridged editions of British textbooks in 86 developing countries. Responsibility for the marketing and distribution of the books remains with the original publishers and these are carried

22 March 1989]

[Continued

out through normal trade channels. It is therefore an Aid and Trade Scheme. The scheme aims to provide textbooks for all mainstream courses in agreed subjects.

2.4.4.2 There are currently 536 books in the scheme. One hundred and twenty-eight cover engineering and technology mostly at the undergraduate and technician levels. One hundred and fifteen are in the field of medical sciences covering all aspects from undergraduate to membership level. Seventy-eight are in pure sciences ("A" level to 3rd year undergraduate); 48 cover agriculture and veterinary science, the former at both college and undergraduate level; 34 cover nursing. Sales statistics are given in Annex 2.

2.4.4.3 Funding since 1984 has consisted of an annual allocation of £1.2 million. Of this a minimum of 95 per cent has been spent on subsidies paid to publishers and a maximum of 5 per cent on publicity and the payment of professional fees and honoraria to external advisers.

3. ILLUSTRATIVE COUNTRY PROFILES

To illustrate some of the variety described in Section 1 this section presents outlines of the science and technology work carried out by the British Council in four developing countries reasonably representative of the wide range. These profiles for China, India, Indonesia and Kenya have been compiled with information supplied by the Council's specialist science staff working in each country. Annex 5 provides statistical information on the training and interchange programmes in each of these countries. Annex 6 gives a breakdown of the training within science and technology subjects for these countries under the Technical Co-operation Training Programme. An analysis of the Council's expenditure from its government grant on science and technology activities in these countries is recorded in Annex 7. The Annexes provide comparative data for the developing world as a whole.

3.1 CHINA

3.1.1 Introduction

3.1.1.1 The pace of opening up and change in China has been astonishing. The British Council restarted its work in China in 1979 following a lengthy gap during the Cultural Revolution. ODA began its aid programme to China about the same time. The Council has had a science specialist member of staff in Beijing since 1984 and during the last five years the opportunities for and the pressures on the Council to expand its science and technology work have been considerable. The promotion of science and technology as one of the Four Modernisations demonstrates China's commitment to the development of science and technology as one of the major forces for economic advancement. Similarly, its co-ordination at Commission (rather than Ministry) level by the State Science and Technology Commission (SSTC) is evidence of the priority given it within the Chinese leadership.

3.1.2 The British Council in China

3.1.2.1 The main Sino-British governmental science and technology link is between DTI and SSTC, with Memoranda of Understanding covering exchanges in fields including Health, Agricultural Science and Transport; and British Council and Royal Society programmes falling under the Cultural Exchange Agreement. British Council work is pursued through the Cultural Sections of the Embassy in Beijing and the Consulate in Shanghai, which it staffs. The first Council Science Officer was posted to Beijing in 1984 and there are now two at post working on British Council and ODA funded programmes and on exchanges under the Health and Agricultural Science Memoranda of Understanding.

3.1.3 Current Priorities

3.1.3.1 In the early days of the Open Door Policy (1979 to 1986) Council science work in China was exploratory with the objective of building up a base of information and institutional contacts following the almost total absence of either in the preceding years. This, and a gradual increase in resources for the work, has enabled the subsequent focussing of effort on areas most directly related to China's development needs and British priorities. In particular work is now focussed on the national key (Chinese designation) universities and research institutes under the major national academies and line ministries.

3.1.4 Academic Links with China Scheme (ALCS)

3.1.4.1 This scheme supports research collaboration between universities, polytechnics and research institutes under which 130 projects and 587 persons have benefited to date. Seventy-four per cent of the work supported has been in science and technology and examples of current projects include:

- Research on virus diseases of cereal crops involving Rothamsted Experimental Station and Nanjing Agricultural University.

22 March 1989]

[Continued

- The dry etching of electronic devices—collaboration between Liverpool University and the South China University of Technology.
- Collaboration in agricultural engineering between Silsoe College and the Beijing Agricultural Engineering University.
- Work on environmental monitoring and research involving the China Research Academy for Environmental Sciences and Liverpool University.
- A new four-year programme involving Imperial College and the Universities of Leeds and Strathclyde and three research institutes under the Chinese Ministry of Chemical Industry, working on process control in the chemical industry.

3.1.5 ODA Programmes

3.1.5.1 The ODA Technical Co-operation Training Programme and the Sino-British Fellowship Scholarship Scheme, both jointly funded by the Chinese and British Governments (the latter also by the Sir Y K Pao Foundation of Hong Kong), provide for training in Britain for some 802 scientists and professionals each year (1988–89 figures). Of this total more than 75 per cent are in science and technology of whom half are in engineering and technology. Forty-five per cent of all training under these programmes has hitherto been at doctoral level reflecting Chinese priorities for upgrading their scientific personnel resource.

3.1.6 Short-term Exchanges

3.1.6.1 Short-term exchanges, funded by the British Council, provide opportunities for Chinese scientists (63 in 1988–89) to study British experience at first hand and to work on proposals for longer term co-operation. High level British participation in major conferences in China is also facilitated under the Council's Key speaker Programme and support is provided for British scientists to visit China on advisory, exploratory and lecturing programmes (62 in 1988–89). Despite the closeness of the number to and from China there is no requirement for precise reciprocity in these exchanges.

3.1.7 Collaboration with the Science and Engineering Research Council (SERC)

3.1.7.1 Developments currently in hand include an important visit in March by the Chairman of the Science and Engineering Research Council. It is hoped that this may lead to the establishment of a series of "n + n" meetings with the Chinese, the initiation of closer collaboration with the State Science and Technology Commission and the National Natural Science Foundation of China, and the development of a small number of "flagship" programmes of the highest quality in areas of major commercial significance, perhaps drawing on a range of resources to ensure viability. Areas of co-operation implemented or under consideration include process control, optoelectronics, geology, biotechnology and power systems.

3.2 INDIA

3.2.1. Introduction

3.2.1.1 The Government of India attempts to maintain a careful balance in its development programmes. It must support the truly disadvantaged (there are more poor people in India than in total in Africa and South America) yet it is very concerned to ensure that it remains in touch with developments in technology and their applications. British aid policy reflects this approach. The provision of substantial local costs funding impacts on the former whilst the technical co-operation programme can assist the latter. Both approaches are welcomed by the Indian Government.

3.2.1.2 India receives by far the largest allocation from the British Aid Programme of any country in the world. It is also the country which has the biggest British Council representation and absorbs more British Council resources than any other. It has the largest complement of science qualified staff at post. Indian science and technology is enormously varied and ranges from advanced research and development performed in sophisticated modern laboratories to the application of huge scale simple and intermediate technologies.

3.2.2 The British Council in India

3.2.2.1 The British Council operates as a Division of the British High Commission in India (BCD). Currently some 30 projects, worth a total of £13 million, are managed on behalf of ODA in areas that can be widely construed as science and technology (ie research, development and education in natural resources, environmental pollution, medical research, science, engineering and technology. Areas such as industrial training, agricultural extension, primary health and basic education provision, in which projects are also on-going, are not included in this figure). There are also some 22 other such projects, worth nearly £7 million, currently undergoing formulation.

3.2.2.2 The Council also uses its core funds and money provided by ODA for links in Higher

22 March 1989]

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Education to support such activities. There are currently around 40 such links in these subject areas. In 1988–89, the Council has funded some 150 British scientists on visits to India and 80 Indian specialists have visited Britain in this way.

3.2.2.3 The range of these activities is very diverse. The movement of people in both directions is considerable and equipment purchases are substantial. Within these projects over 480 Indian researchers will visit Britain for training, 250 British consultancy visits to India will take place and British equipment costing more than £5 million will be provided. It is expected that this will generate long term benefits to British exporters. These projects require careful management to ensure that all activities are phased and integrated effectively and that both the Indian and British ends of the operation are efficient. The British Council in India has a skilled team of project staff with some seven UK and 11 Indian staff scientifically trained.

3.2.3 *Current Priorities*

3.2.3.1 For ODA projects the priorities are determined by the ODA geographical department and ODA Review Missions. British Council staff participate in these reviews. Recent Missions that have research and development implications, have given policy direction in the Natural Resources (1988) and Health (1987) Sectors. An Education Sector policy paper was prepared in 1986 recommending a strengthening of the training of engineers and technologists through support to Regional Engineering Colleges. The Council is now actively pursuing a proposal for this through the Indian Government.

3.2.3.2 Science and technology work is covered by a Memorandum of Understanding between the two governments. Although this is not subject-specific it provides a useful “umbrella” for steering proposals through the bureaucracies. In all these research and development projects there is very considerable investment from the Indian side, normally much more than from Britain. All such projects must be approved by both the parent Ministry as well as the Ministry of Finance and must therefore represent priority areas to the Indian Government. Additionally, in most cases, these are in subjects where the Indian project authorities know of British expertise and are keen to seek collaboration.

3.2.3.3 The British Council in India has assigned priority areas for the main thrust of its work in science and technology. These areas are ones which are given high priority for socioeconomic development in India, in which Britain has established expertise and interest in promoting in India and for which both sides have an infrastructure to support initiatives. Topics include biotechnology (eg vaccine production, recombinant DNA technology) air and water pollution and the rehabilitation of derelict land, computing and control, materials technology, the detection and treatment of cancers. The Indian Government has, in general terms, agreed to these priorities and is supporting initiatives accordingly.

3.2.4 *ODA Projects: Formulation, Implementation and Monitoring*

3.2.4.1 As described above, the selection of priorities can result from ODA Review Missions. However many requests for assistance arise from Indians working in priority areas who have a knowledge of UK resources. This knowledge is frequently through contact with Britain through training or via Council-managed schemes. Council staff who are in day to day contact with Indian institutions can thus assist with project identification and, through their knowledge of ODA policies, can encourage or discourage proposals. At the request of ODA, the British Council frequently assists in project formulation. However the appraisal of projects is normally undertaken by ODA staff and their professional advisers. Management of the implementation of such projects in India is then often delegated to the Council with professional monitoring and evaluation undertaken jointly by Indian and British professionals.

3.2.4.2 This process is complex but it does help to ensure that projects run to schedule, conform to priorities and have realistic objectives. As the support administration is mainly provided by locally-engaged British Council staff, costs are minimised whilst quality is maintained. Furthermore, as these are bilateral projects, Council specialist staff in Britain, who have detailed knowledge of UK resources, can identify and organise consultants, training, equipment etc. Both ends of the project can thus be planned and professionally managed.

3.3 INDONESIA

3.3.1 *Introduction*

3.3.1.1 Science and technology is given high priority by the Indonesian government in its efforts to promote economic development. With a population of 270 million, Indonesia's manpower development needs are enormous. Very large amounts of money are borrowed from the International Lending Agencies, much of which is used for projects designed to develop the education and training infrastructure which is necessary to service the needs of the growing industrial sector. Government

22 March 1989][Continued

priority is currently given to the development of non-oil exports and to the processing of raw materials within Indonesia.

3.3.1.2 Indonesia is a country of huge potential where Britain has made little impact until recently. Three factors have now coincided to create a unique opportunity to change this situation:

- Indonesia has become a major beneficiary of International Lending Agency loans and is devoting large parts of these to manpower development;
- the Indonesians have become somewhat disillusioned with their traditional partners in education and training and have shown themselves to be well-disposed to increasing collaboration with Britain in these fields;
- as a result of considerable investment of resources over the last few years the Council has established its credibility with the Indonesian Government as a provider of educational services.

3.3.2 *The British Council in Indonesia*

3.3.2.1 British Council objectives in Indonesia, like those of the British Aid programme in general, reflect the high priority attached by the Indonesian Government to Science and Technology. Since 1985 the Representation has had considerable success in attracting Indonesian interest towards British education and training resources, particularly in the areas of science and technology, creating at the same time a favourable climate for British interests in general.

3.3.3 *Paid Educational Services*

3.3.3.1 Under its programme of Paid Educational Services the Council administers consultancies and training funded by the Government of Indonesia using International Lending Agency funds. Since 1985 major contracts have been won, against strong international competition, for projects including:

- World Bank Polytechnic Education Development Projects I and II;
- World Bank Education and Manpower Development Project;
- World Bank Second Universities Development Project.

3.3.3.2 Under the World Bank Second Universities Development Project, for example, the Council has assisted with the setting up of a network of "Inter-University centres" based at major Indonesian universities in subjects including engineering, biotechnology, microelectronics, life sciences, food science and technology and computer science. Links have been established with a carefully selected group of British institutions which, as the project progresses, is developing considerable experience of Indonesian needs in science and technology.

3.3.3.3 The Council is also currently involved in implementation or pursuit of a number of Asian Development Bank projects in areas including Vocational Education, Agricultural Education, Secondary Technical Schools and Marine Sciences. For the Marine Sciences the Council is collaborating with partner organisations from Germany (GTZ) and the Netherlands (NUFFIC).

3.3.3.4 The Council aims to maximise British involvement in such projects by demonstrating British strengths, providing information both to Indonesian Project Managers and to British institutions, and where necessary by use of the Council's fund to pump prime. Despite the fact that Indonesia has traditionally looked to other European countries, especially France, Germany and the Netherlands, and to the USA, this policy has resulted in a substantial increase in British involvement. This is reflected in the number of trainees sent to Britain under such projects, the progression over the last four years being from 5–50 to 250–400.

3.3.4 *ODA Programmes*

3.3.4.1 The Council also administers the ODA Technical Co-operation Training Programme in Indonesia under which about 160 Indonesians taking up new awards come to Britain each year for training, mostly in scientific or technological subjects. Close collaboration with the ODA is also maintained in a number of teacher education projects related to science teaching and primary education. The Council also provides professional support for some ODA-funded Technical Co-operation posts which are operating in the education sector.

3.3.4.2 A new project on which the British Council is working in close collaboration with the ODA is the British-Indonesian Science and Technology Information Service. By use of satellite links this service provides the Indonesian Scientific Documentation and Information Service with direct access to the European Space Agency Information Retrieval Service, The British Library Automated Information Services and the Pergamon Financial Data Service. Indonesian institutions cover the costs of telecommunications while the Council and ODA cover the cost of database searches.

22 March 1989]

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3.3.5 *Establishment of Links in Science and Technology*

3.3.5.1 A high proportion of academic exchanges funded by ODA and organised by the Council are in areas of science and technology. Links which have been established include:

University of Diponegoro	(Fisheries)
University of Airlangga	(Dentistry)
Bandung Institute of Technology	(Applied Mathematics)
Surabaya Institute of Technology	(Marine Technology)
University of Indonesia	(Metallurgy and Nutrition)

3.3.6 *Commercially Related Science and Technology Projects*

3.3.6.1 There is a growing trend for British aid in Indonesia to be focussed on fewer but larger projects and for it to be in the form of ATP (Aid Trade Provision)/Soft Loans. The development of worthwhile science and technology projects in Indonesia takes a lot of time, expert staffing and patience and is therefore expensive. A recent collaborative effort between DTL, ODA and the British Council over project identification and appraisal (Western Universities Equipment Survey) could become a model for commercially related science and technology project work. This is a very competitive market in Indonesia with many countries gaining an advantage by using aid funded soft loans to subsidise their bids for involvement in International Lending Agency projects.

3.4 KENYA

3.4.1. *Introduction*

3.4.1.1 Because of its post-colonial stability Kenya has always been one of the biggest recipients of British aid in Africa. Until recently the main focus for Council work has been educational rather than scientific. Consequently this is a country where the Council has not recently kept a science specialist regularly at post. Particularly in the 1970s there was strong support for science and mathematics education at school level.

3.4.2 *The British Council in Kenya*

3.4.2.1 A major role of the British Council in Kenya is management of the education and training components of the ODA aid programme and it is from this that virtually all its activities in science and technology arise. The work thus concentrates on manpower and institutional development and is carried out in close collaboration with Kenyan government departments.

3.4.3 *ODA Programmes*

3.4.3.1 The work in education has, in the past, been aimed largely at the non-formal sector involving, for example, co-operation in community-based agricultural projects. The focus has shifted from this to a greater involvement with the National Polytechnics and Universities in conventional science and technology subjects. This has involved a trend away from applied science and technologies in the universities to support for development in the pure or "basic" sciences. In the national Polytechnics assistance is being targeted on technical education. In the near future these Polytechnics will also be offering degree courses.

3.4.3.2 ODA's policy in Kenya has been to develop fewer but larger projects for which the different components are very closely integrated. The Council is responsible for managing such projects on the basis of agreed "Project Frameworks", ensuring that all inputs are properly phased and integrated and that the objectives are fulfilled. This project approach has led to a more sharply focussed and monitored package of assistance involving provision of equipment, UK staff, consultants, books and training awards.

3.4.3.3 It is envisaged that future assistance to science teaching in secondary schools would be complemented by the provision of assistance with the training of graduate teachers of science at Kenyatta University. This would re-introduce ODAs project to equip 60 secondary schools with laboratories, and links with a decision by the World Bank to equip 300 schools with laboratories.

3.4.3.4 There is a large Technical Co-operation Training programme for Kenya and in 1987-88 210 new awards were made in science and technology for study in the United Kingdom in addition to the continuation of 247 awards for trainees who began their programmes in previous years. The allocation for all TCT awards has risen from £4.48 million in 1984-85 to £6.1 million in 1989-90. Over 50 per cent of the annual allocation is spent on training in science and technology.

3.4.3.5 An in-country training programme, financed by ODA under the Technical Training Programme, has been initiated and short courses are currently being planned in marketing of horticultural products, training of university technicians and permanent way maintenance for Kenya Railways, in collaboration with Transmark (UK). These courses, normally of between two and six weeks, are run in Kenya, organised by Kenyan institutions which contribute to the local costs and co-directed

22 March 1989]

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by British specialists. When the programme began in 1987 it had an allocation from ODA of £100,000. In 1989–90 the allocation will have grown to £200,000. Such programmes are of considerable interest to Kenyan educational institutions, government ministries, and parastatals and increasing demand is anticipated.

3.4.4 University Links

3.4.4.1 The establishment of university academic links has been an important component of the Council's work in Kenya and has contributed greatly to the building up of key Kenyan institutions. During the past five years support has been given to links including:

Kenyatta University —Queen Mary College, London	(Zoology)
University of Nairobi—Guys Hospital	(Dentistry)
University of Nairobi—University College, London	(Biochemistry)
University of Nairobi—Sussex University	(Botany)

3.4.5 Short-Term Exchanges

3.4.5.1 Short term visitorships from Kenya to Britain have been arranged by the Council in such areas as tropical medicine, neurosurgery, management of cancer and AIDs. Nine visiting specialists were also sent to Kenya by the Council in 1987–88 in such areas as paper conservation, tea cultivation, wild life management, chemistry, population mobility techniques, pest management, community health.

4. NOTES ON SOME ISSUES RAISED BY THE COMMITTEE

4.1 TECHNICAL CO-OPERATION TRAINING PROGRAMME

4.1.1 The programme has expanded dramatically over the past nine years (currently more than 13,000 trainees compared with 8,000 in 1979–80) with a major increase in science and technology training. Systematic evaluation of the TCT Programme indicates that this expansion has been implemented satisfactorily and that the programme continues to be a highly effective instrument for development aid.

4.1.2 A reliable and consistent system of evaluating the training provided under the programme is of vital importance. The Council devotes considerable efforts to this. Its TC Evaluation Unit sends questionnaires to 50 per cent of all TC trainees at the end of their periods of training and conducts detailed evaluations of the TC programmes in eight countries each year interviewing both former trainees and their employers. The most recent evaluations were of Somalia, Sudan and the Philippines.

4.1.3 The Evaluation Unit's report on the results of the End of Training Questionnaire in 1987–88 (response rate 68 per cent) indicated that:

- 73 per cent of Study Fellows who responded were satisfied or very satisfied with their training programme in Britain;
- 74 per cent of the Study Fellows who responded said they would be able to use all or most of their training when they returned home;
- 99 per cent of Study Fellows who responded would recommend a visit to Britain to their compatriots.

4.1.4 The Council believes that the high overall success rate of the programme is principally due to the care taken to ensure correct placement and appropriate courses of study. Less than 1 per cent of trainees fail to complete their course of study.

4.1.5 There is a growing trend, in line with ODA policy, for training to be related to specific projects supported by the ODA. The Council welcomes this policy, which provides a sound basis for identifying training needs and fulfilling them. Such narrowing of the selection criteria for potential trainees does however mean that there are sometimes problems concerning the academic background or English language ability of trainees.

4.1.6 The TCTP is an integral part of complex packages of British inputs in each individual country; funded from a variety of sources, but administered by the Council in ways best adapted to that country's specific needs.

4.2 THE OBJECTIVES OF BRITISH SCIENCE AND TECHNOLOGY AID

4.2.1 There is often a mismatch between donor and recipient priorities for science and technology aid with the recipient wanting more support for basic R&D. Whilst priority should, in most cases, be given to support for applied science and technology we have some sympathy, for the reasons given in paragraph 4.6 below, for the perceived need in some countries to develop a sound infrastructure in the basic sciences. British aid in general covers a wide spectrum and concentrates correctly on economically relevant manpower development and institution building.

*22 March 1989]**[Continued]*

4.3 THE IDENTIFICATION, MANAGEMENT AND EVALUATION OF SCIENCE AND TECHNOLOGY PROJECTS

4.3.1 The identification of science and technology projects is carried out by a complex process determined by the funding agency, eg ODA, World Bank, etc. The British Council hopes to contribute to the process on the basis of its local expert knowledge and specialist staff.

4.3.2 The process of project management in the British Aid Programme is still evolving and becoming more formalised. As an implementing and management agency the British Council welcomes the move towards formal contractual agreements with the ODA which will help it to improve efficiency and work towards targets providing value-for-money. Science and technology projects do not differ from others in this respect.

4.3.3 The formal evaluation of projects is normally carried out by the funding agency. However, the British Council believes that continuous monitoring, quality control and stage review are equally important in ensuring that projects successfully achieve their objectives. The Council's professional staff in the field contribute to ensuring good local management, supplemented by its network of support staff and professionals in the UK.

4.4 THE COMPARATIVE EFFECTIVENESS OF BILATERAL AND MULTILATERAL SCIENCE AND TECHNOLOGY WORK

4.4.1 With the possible exception of the United States aid to Israel and Egypt, the scale of multilateral funding in scientific and technical aid is far greater than that provided under bilateral programmes. The level of investment in these areas by the development banks, United Nations agencies, and the European Commission in such countries as China, Indonesia, Egypt, Turkey, India and Africa south of the Sahara has been particularly important over the past 15 years. The loan development discipline and the professional expertise displayed in particular by the World Bank are now recognised as being important components of success for the projects and programmes that result. The most effective deployment of bilateral aid will often be in support of, or complementary to, multilateral investment: not only does this ensure, as far as possible, that the recipient government is dealing with a coherent programme, but it should also enable the bilateral donor frequently to see a greater return for the grant being made. If Britain, for example, co-finances a technical education project with the World Bank, then there will be an inevitable tendency for the multilateral portion also to be devoted to British resources and expertise. A current project in Nigeria is a case in point.

4.4.2 This being said, there is also a great value in the kind of small scale sensitive deployment of aid in science and technology of which only bilateral agencies seem capable: a quick response to a need perceived by both donor and recipient made without the panoply and fuss of multilateral loan negotiations.

4.4.3 The Council has had experience of both approaches and believes that a particularly important role exists for the sensitive and organised deployment of British resources and expertise in both multi- and bi-laterally funded programmes.

4.4.4 The main difference between bi- and multi-lateral projects is simply one of scale. Most ODA projects are in the range of hundreds of thousands of pounds, whereas most multilateral projects are in the millions. The latter have correspondingly more ambitious objectives; such as the creation or strengthening of whole faculties or institutions. The former are usually restricted to developing and strengthening existing departments, often by maintaining links that have been under way for some years already.

4.4.5 There is also a difference in geographical distribution, with British-funded activity being concentrated in countries with long-standing British ties. Multilateral projects have no such geographical restrictions, and have thus enabled the Council to initiate large-scale activity in science and technology with countries (such as Indonesia) with which Britain has traditionally had little contact in this sphere.

4.4.6 From the Council's point of view as an implementation agency, there is much to be said for the kind of contractual relationship we enjoy with governments using loan or grant funds from multilaterals. They are often more comfortable as contractors of our services than when we are delivering bilateral aid, the mechanisms for which are not of their making.

4.5 THE USE OF BRITISH SCIENCE AND TECHNOLOGY RESOURCES IN PROJECTS FUNDED BY THE INTERNATIONAL LENDING AGENCIES

4.5.1 As outlined in Section 1, the British Council has expanded its Paid Educational Services (PES) activity, in which it co-ordinates and manages inputs of British resources in the implementation of (mainly science and technology) projects funded by International Lending Agencies such as the World Bank. The Council has sometimes found itself at a disadvantage in bidding for such projects against competition from agencies from other countries who can count on active co-financing or subsidy support from the official bilateral aid programme of those countries. Believing that it is strongly in the general interest of this country that its consultants, scientists and engineers participate to the maximum in developing projects in the Third World, the British Council hopes that it will become possible for British aid funds to support PES more widely in cases where the normal criteria for aid worthiness are met.

22 March 1989]

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4.6 THE CREATION OF CRITICAL MASS SCIENTIFIC COMMUNITIES IN DEVELOPING COUNTRIES

4.6.1 The British Council supports the view that the establishment of a self sustaining community of indigenous professionals in important scientific fields is vital for developing countries and particularly for newly industrialised countries. Communication and organisation through professional associations and academies is very important in creating local professional pride and critical attitudes.

4.6.2 Such issues are seldom addressed in most aid programmes with their emphasis on mission orientated projects. The work of the Royal Society in supporting developing country scientific academies is very valuable but we feel that more could be done perhaps along the lines developed by the Swedish organisation SAREC or the International Foundation for Science (IFS) which have focussed their work on supporting indigenous scientific and engineering communities in developing countries.

4.7 THE QUESTION OF "FOLLOW-UP"

4.7.1 The provision of continuation or "back-up" support for scientists, engineers and technologists from developing countries who have been brought to Britain for training ensures a better return on the money invested.

4.7.2 The move towards increased projectisation of training provides a basis for such follow up especially where an ongoing link has been developed with a British institution. But after a project finishes, or if the training has not been project related, there may be no concerted attempt to follow up the British investment and support subsequent professional activity or career development of the former trainee.

4.7.3 The British Council has been paying increasing attention to such follow-up and over the last four years has set up a special microcomputer based system to help its overseas representations to keep track of ex-scholars, trainees and visitors.

4.7.4 The Council would also advocate resources being devoted to specific programmes providing continued support. This could include subscription to professional journals, help with subscriptions to British professional associations and support for short refresher visits to Britain to attend conferences or seminars.

ANNEX 1

BRITISH COUNCIL LIBRARIES IN INDIA, INDONESIA AND KENYA: SCIENCE AND TECHNOLOGY STOCK

	<i>Stock in science, technology and medicine</i>	<i>Percentage of total stock (%)</i>	<i>Percentage of total loans (%)</i>
India	208,743	47	52
Indonesia	15,902	24	22
Kenya	14,233	30	39

Note:

There is no British Council library in China.

ANNEX 2

SALES STATISTICS FOR ENGLISH LANGUAGE BOOK SOCIETY

	<i>1984-85</i>	<i>1985-86</i>	<i>1986</i>	<i>1987</i>
Total sales	Volumes: 931,245 Value: £1,424,671	Volumes: 1,018,723 Value: £2,042,646	Volumes: 1,036,310 Value: £2,233,607	Volumes: 851,741 Value: £1,912,633
	(%)	(%)	(%)	(%)
Africa	9.5	13.0	8.2	10.0
Central and Southern Africa	10.7	10.0	11.2	14.1
India	25.9	34.5	35.3	25.0
West of Indian sub-Continent	6.9	5.0	7.9	6.3
Far East/SE Asia	30.4	22.0	22.9	26.7
Near and Middle East	6.9	7.0	6.5	6.4
Caribbean	3.8	4.0	3.0	3.7
Other	5.9	4.5	5.0	7.8

Notes:

Figures for 1984-85 and 1985-86 are for the financial year; thereafter for the calendar year.

Figures for 1988 will not be available until the end of March.

22 March 1989]

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ANNEX 3

DEVELOPING COUNTRIES WITH LONDON-APPOINTED SCIENCE QUALIFIED STAFF
AT POST ON 1 MARCH 1989*

1† Brazil (2)	† Indonesia (2)	Nigeria (2)	Sudan
Cameroon	Kenya (2)	Pakistan	Tanzania (2)
2† China (2)	† Mexico	Sierra Leone	† Turkey
Bangladesh	Morocco	Singapore	Uganda
2† Egypt (2)	Nepal	South Africa (2)	Zambia
Fiji	Philippines	Sri Lanka	Zimbabwe
6† India (7)			

* Defined here as countries in which there is a Technical Co-operation Programme.

† Countries with posts specifically designated for scientifically qualified members of staff.

ANNEX 4

MEMBERSHIP OF BRITISH COUNCIL ADVISORY COMMITTEES COVERING SCIENCE,
TECHNOLOGY, AGRICULTURE AND MEDICINE (AS AT 1 MARCH 1989)

1. AGRICULTURAL AND VETERINARY ADVISORY COMMITTEE

Sir Leslie Fowden, FRS—Chairman

Formerly Director, Institute of Arable Crops Research, Rothamsted Experimental Station, Harpenden.

Ms M A Bellamy, BSc, Managing Editor, The Commonwealth Agricultural Bureau International.

Mr A J Bennett, Chief Natural Resources Adviser/Under Secretary, ODA.

Professor Lalage Bown, OBE, Department of Adult and Continuing Education, University of Glasgow.

Professor D W Brocklesby, DrMedVet, FRCPath, FRCVS, Director, Centre for Veterinary Medicine, University of Edinburgh.

Dr J Burley, MFMA, Director, Oxford Forestry Institute.

Mr A Harris, NDA, MIAgrE, MIBiol, FRAGS, Principal, Harper Adams College of Agriculture, Newport.

Professor P Haskell, CMG, PhD, FRES, FIBiol, Director, Cleppa Park Research Station, University of Wales, Cardiff.

Mr G H Jackson, CBiol, MIBiol, FBIM, CIAgrE, Agricultural Director, Royal Agricultural Society of England.

Professor B A May, CEng, MIMechE, FIAgrE, MASAE, FRAGS, Head, Silsoe College.

Professor J C Murdoch, OBE, PhD, formerly Director, Agricultural Research Institute, Northern Ireland.

Dr L Norman, Principal, Hampshire College of Agriculture.

Professor J H D Prescott, BSc, PhD, FIBiol, Principal, Wye College.

Professor M J Rolls, BSc, DipEd, Director, Department of Agricultural Extension and Rural Development Centre, University of Reading.

Professor P Wilson, CBE, FIBiol, FRSE, Principal, Edinburgh School of Agriculture.

2. ENGINEERING AND TECHNOLOGY ADVISORY COMMITTEE

Professor R W H Sargent, PhD, DIC, ACGI, HonFCGI, FEng, FICHEM, FIMA—Chairman

Department of Chemical Engineering, Imperial College, University of London.

Dr G S G Beveridge, FRSE, FEng, FICHEM, President and Vice-Chancellor, The Queen's University, Belfast.

Professor J D E Beynon, PhD, CEng, FIEE, FIERE, Pro-Vice Chancellor, University of Surrey.

Professor B L Clarkson, PhD, DSc, FEng, FRAeS, Principal, University College, Swansea.

Sir Diarmuid Downs, CBE, FRS, FEng, FIMECH, formerly Chairman/Managing Director, Ricardo Consulting Engineers plc.

Professor P D Dunn, PhD, CEng, FIEE, FIMECH, Department of Engineering, University of Reading.

Professor K J Durrands, MSc, CEng, FIMECH, FIEE, FIProdE, Rector, Huddersfield Polytechnic.

Mr J D Howarth, FIMECH, FBIM, Head Branch 2, Research Technology Policy Section, DTI.

Professor J C Levy, OBE, PhD, CEng, FIMECH, Director, Engineering Profession, Engineering Council.

Professor P B Morice, PhD, DSc, FICE, FISTRUC, Department of Civil Engineering, University of Southampton.

*22 March 1989]**[Continued*

3. MEDICAL ADVISORY COMMITTEE

Dr M P W Godfrey, CBE, FRCP, JP—Chairman.

Formerly Second Secretary, Medical Research Council.

Sir Donald Acheson, DM, FRCP, FFCM, Chief Medical Officer, DHSS.

Professor D Campbell, CBE, FRCP(G), FFA, RCS, University Department of Anaesthetics, Glasgow.

Mr N Dugdale, CB, DLitt, formerly at DHSS, Northern Ireland.

Professor D L Hamblen, PhD, FRCS, Department of Orthopaedic Surgery, Western Infirmary, Glasgow.

Professor D Hull, BSc, MB, FRCP, DCH, Department of Child Health, University Hospital and Queens Medical Centre, Nottingham.

Professor P Lachmann, ScD, PhD, MB, FRCP, FRCPATH, FRS, MRC Centre, The Medical School, Cambridge.

Professor June K Lloyd, MD, FRCP, DCH, Department of Child Health, Institute of Child Health, University of London.

Professor K P W McAdam, MA, MB, BChir, MRCP, Department of Clinical Tropical Medicine, London School of Hygiene and Tropical Medicine.

Professor M J Peckham, MA, MD, FRCP, FRCP, Director, British Medical Federation, London.

Professor D K Peters, FRCP, Regius Professor of Physics, University of Cambridge.

Professor P Richards, MA, MD, PhD, FRCP, Dean and Professor of Medicine, St Mary's Hospital Medical School, London.

Professor C J Smith, PhD, BDS, FRCPATH, University Department of Oral Pathology, Charles Clifford Dental Hospital, Sheffield.

Dr D A J Tyrrell, CBE, DSc, MD, FRCP, FRCPATH, FRS, MRC Common Cold Unit, Haverd Hospital, Salisbury.

Professor R C N Williamson, MD, Chir, FRCS, Department of Dental Surgery, Royal Postgraduate School, University of London.

4. SCIENCE ADVISORY COMMITTEE

Professor D R Williams, PhD, DSc, CChem, FRSC—Chairman.

School of Chemistry and Applied Chemistry, University of Wales, Cardiff.

Professor A Boksenberg, PhD, FRS, Director, Royal Greenwich Observatory, Hailsham.

Professor I Butterworth, CBE, FRS, Principal, Queen Mary College, University of London.

Lord Chorley, FCA, Coopers and Lybrand, London.

Dr M J Frazer, FRSC, Chief Executive, Council for National Academic Awards.

Professor R J Roberts, PhD, MRCVS, FRSE, Institute of Aquaculture, University of Stirling.

Sir Alwyn Williams, PhD, FRS, FRSE, Palaeobiology Unit, University of Glasgow.

22 March 1989]

[Continued

ANNEX 5

ANALYSIS OF TRAINING (NEW AND CONTINUED AWARDS) AND INWARD VISITS UNDER SCHEMES ADMINISTERED BY THE BRITISH COUNCIL IN CHINA, INDIA, INDONESIA AND KENYA: 1987-88

TC/TP	FCO SAS		BC visitors and fellowship		CFT		EC		UN		CAU		PES		CICHE		HED		VIS		Total	
	No. of awards	% S&T	No. of awards	% S&T	No. of awards	% S&T	No. of awards	% S&T	No. of awards	% S&T	No. of awards	% S&T	No. of awards	% S&T	No. of awards	% S&T	No. of awards	% S&T	No. of awards	% S&T	No. of awards	% S&T
China	734 (582)	79	79 (5)	6	55 (27)	49	6	67 (4)	—	—	71 (54)	76	—	7 (0)	—	1 (0)	74 (67)	91	83 (29)	35	1,110 (768)	69
India	1,504 (878)	58	21 (11)	52	13 (8)	62	18 (7)	39	—	—	106 (72)	68	72	—	—	—	52 (49)	94	248 (124)	50	2,147 (1,283)	60
Indonesia	274 (115)	42	4 (2)	50	1 (0)	—	136 (73)	54	—	—	7 (6)	86	—	295 (236)	80	2 (1)	4 (3)	75	61 (19)	32	784 (455)	58
Kenya	822 (457)	56	24 (7)	29	12 (6)	50	35 (24)	69	12 (11)	92	33 (23)	92	70	—	—	—	4 (4)	100	71 (26)	37	1,025 (569)	56
Total for all aid-recipient countries	11,465 (6,060)	53	892 (318)	36	1,623 (765)	47	1,273 (799)	63	585 (294)	50	947 (604)	64	1,283 (807)	549 (416)	76	54 (41)	401 (251)	63	1,588 (676)	43	20,660 (11,031)	53

Note:

Figures in brackets are the total number of awards within categories of Science, Technology, Medicine and Agriculture.

22 March 1989]

[Continued

ANNEX 6

TECHNICAL CO-OPERATION TRAINING PROGRAMME: ANALYSIS OF TRAINING IN SCIENCE AND TECHNOLOGY SUBJECTS FOR CHINA, INDIA, INDONESIA AND KENYA IN 1987/88

	Total no of trainees in S&T	Percentage in Medicine	Percentage in Physical Sciences	Percentage in Engineering and Technology	Percentage in Biological Sciences	Percentage in Agriculture	Percentage in Mathematical Sciences
China	582	6	29	53	5	5	2
India	878	7	3	66	2	22	—
Indonesia	115	4	25	35	10	26	—
Kenya	457	14	13	41	7	23	2
Total for all aid-recipient countries	6,060	18	12	40	4	25	1

22 March 1989]

[Continued

ANNEX 7

ANALYSIS OF EXPENDITURE ON SCIENCE AND TECHNOLOGY ACTIVITIES⁽¹⁾ IN CHINA, INDIA, INDONESIA AND KENYA FROM THE COUNCIL'S GOVERNMENT GRANT⁽²⁾ (1988-89 ESTIMATES)

	Government grant ² (£m)	Amount spent on science and technology related activities (£m)	Percentage spent on science and technology related activities
China	2.49	1.13	45
India	6.48	3.40	53
Indonesia	2.04	0.64	31
Kenya	1.92	0.51	27
Total for all aid-recipient countries	54.69	19.25	35

Notes:

(1) Activity Analysis figures including staff costs, overheads, etc. and those elements of Exchange of Persons, Libraries and Information work which specifically involve science and technology.

(2) Includes Mixed Money, Aid Administration Grant, ex-IUC Grant and ex-TETOC Grant.

Examination of witnesses

Mr RICHARD FRANCIS, Director-General, Mr BRIAN VALE, Assistant Director-General, Dr GARETH HOWELL, Controller, America, Pacific and East Asia Division, Mr HOWARD THOMPSON, Controller, Science, Technology and Education Division, and Dr NEIL KEMP, Science Officer, India, British Council, called in and examined.

Chairman

78. Mr Francis, thank you for coming along today. We also thank you for your paper which we found extremely helpful and well laid out. We are particularly grateful for the four specific examples of aid which you gave. Would you like to say a few words by way of introduction?

(Mr Francis) Thank you for offering this opportunity to present oral evidence. If I could briefly introduce my colleagues, on my far left is Dr Neil Kemp, head of the projects unit in India who can speak to one of those particular examples; on my immediate left is Dr Gareth Howell, Controller of our Americas, Pacific and East Asia Division, which is one of our overseas divisions—he is one of our “geographers”, if you like; on my immediate right is Mr Brian Vale, Assistant Director-General and member of the top management of the Council with particular responsibility for our Science, Technology and Education Division and also our relations with the ODA; and on my far right is Mr Howard Thompson, Controller of our Science, Technology and Education Division. I will act as a scrum-half in the proceedings, passing the ball to the appropriate back.

Chairman] We would particularly like to thank Dr Kemp for coming a long way. We understand he has come back from India. We hope to pay a visit there later in the year. We are particularly glad to have the benefit of his advice.

Lord Shackleton

79. I am amazed the British Council have enough funds to do this. It is difficult enough to get them to pay for a trip to Paris, even when it is on aid business.

(Mr Francis) We are very mean with our money, but from time to time we have to bring our people back to ensure they have not gone native. This was part of a routine return to this country. By way of brief explanation of one or two things mentioned in the introductory section of our paper, the British Council operates rather like jam in a sandwich. We are at the interface and for that which we do not do ourselves we act as brokers and agents for others to do it. Much of our expertise lies in identifying expertise in others and putting together experts from this country in relation to needs and demands and indigenous expertise in the countries in which we work. We are independent and non-political, a not unimportant attribute in many of the countries we are working in where there is political sensitivity. We have a network of contacts which we can fairly claim to be unique in the sense that we have not only a global network with people working in some 82 countries, some 52 of which are recognised as developing countries by the World Bank, but we have a network of contacts in this country with the science and technology community. I think it is also worth indicating briefly what we do and do not do. The policy is essentially country-led, and that is why we point out in 1.2.3 that the local context determines the part played by science and technology. The situation varies from developing country to developing country and from time to time. At 1.2.4 we point out

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued

[Lord Shackleton *Contd*]

that in our role at the interface we need to respond quickly to changing circumstances both in Britain and those countries where we are working, and that implies a need to be flexible in our methodology. Often, our role may be to harmonise diverse inputs, and also diverse British inputs, from the public and private sector, to harmonise diverse schemes and projects which bear on the same problem in the country in which we are working. That harmonisation may extend to the ratification of examinations, and so on, and also the recognition of qualifications as between countries in which we are working. Most importantly, I have to say that the bulk of our work in these aid countries is done as the agent of the ODA, and that means that we work to the policy set by Ministers, and we act as their agents, and so they are our clients. Our methodology in relation to the ODA is going through a profound set of changes to the benefit of the service we can offer and of benefit in terms of assuring best value for money. To that extent you find us on the cusp. We are on the move and our methodology is changing. We are going through a major joint review with the ODA into that methodology. Finally, I think we ought to qualify the word "implementation" which appears in 1.4.1. The way in which we understand "implementation" appears in 1.2.4 and 1.4.1. What we are implementing is the British component of programmes in the countries in which we work. Of course, that has to be complementary to the indigenous component, and when we work as an agent that component will involve, for example, our recruiting experts—teachers and others. Therefore, where we do not have the expertise ourselves our job is to know where that expertise is to be found. I think the word "implementation" might have too vague a meaning if taken literally.

Chairman

80. Is it right to draw the inference that you rather prefer multilateral aid to bilateral aid, and, if so, is that because you get more money out of multilateral aid?

(*Mr Francis*) I do not think we have expressed a preference. There are certain circumstances where it is easier to work with one or the other. But we see ourselves as having an obligation to seek multilateral aid finding, not least "to get our money back" because Britain is a major contributor to the multilateral aid agencies in many respects. We believe we have an obligation to fulfil in that respect, but how a project is funded will depend very much on the circumstances.

(*Mr Thompson*) I would like to add a point because if we did overbalance that statement, it was not intended. The point we would make is that when developing country governments borrow money from multilateral agencies or receive grants, they feel themselves to be much more in control of the projects and their relationship with us is considerably easier for that reason. It is a much more direct relationship between us and them, rather than the three sided relationship when we have to take into account the ODA priorities and feelings about what

should be achieved in that way. The World Bank, although it has the same policy and feelings, does not interfere once implementation has started. It does make for an easier working relationship.

81. You are saying when there is multilateral aid, there are fewer people to deal with?

(*Mr Thompson*) Our implementation is much more that the government tells us what we do, and they judge us according to whether we do it.

82. What contribution do you expect your activities (eg training, provision of experts, links between universities and research institutes in the United Kingdom and overseas) to make to scientific and technical aid to developing countries?

(*Mr Vale*) My Lords, I think that from the point of view of both the quantitative elements and the qualitative elements the contribution the Council makes to these questions is quite considerable. Science and technology of course are an integral part of any developmental process, and the progress of science and technology depends upon development of human skills and capacities. This is, of course, exactly what the British Council is about. The Council is in the business of knowledge, attitudes, transfer of technology, development of indigenous skills, co-operation in education and research, and of course making British experience known and available overseas. But, more than that, as the Director General has already said, the Council is in the business of making things happen, and the means through which we work, either on our own account or more spectacularly for the ODA or the World Bank, are well suited to impact on scientific and technological scenes. Our paper has outlined the various mechanisms we have available but briefly we run training and staff development programmes; we provide British expertise of all kinds; we support institutional links and within the link there is often an element of joint research; we run English language teaching programmes which frequently have a scientific or technological aspect, and we feel we have a useful input to make into the process of making country policy, particularly in terms of interpreting local dimensions and possibilities. In terms of both the quantity of aid and its quality, we think we have quite a contribution to make.

83. You presumably regard the teaching of the English language as very important, because it is becoming the language of technology?

(*Mr Francis*) Indeed, yes. It is worth noting that of the five main activities of the British Council four of them are relevant to the subject we are discussing this afternoon. There is of course the expertise in science and technology, the interchange programme, literally moving people back and forth; the teaching of English in particular a pre-requisite to taking best advantage of the training and educational facilities we in Britain can provide; and our library and information services on the ground, whereby students and other people in professional training have access—very often sole access—to British text books. It is particularly notable in the developing world where there are foreign exchange problems,

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued]

[Chairman Contd]

and where in some cases there is no foreign exchange available for the purchase of expensive medical and scientific text books, the British Council Library may be the one point where they can find those text books.

Lord Shackleton

84. Would you care to say a little more about your relationship with ODA? This arises out of your remarks on multilateral aid. Presumably the ODA and you have a number of specialist committees, how much scope for independent action do you have? If you decide you want to respond to something the World Bank wants, can you do that or is there conflict? It may be you are sensible people and the ODA are sensible people, but on the other hand there are all the signs of splendid bureaucratic confusion.

(*Mr Francis*) I believe the short answer is yes and yes. That is to say, we can go further and we are free to do so, if you like, under the terms of our Charter but mainly because our remit is actually broader than that of the ODA. Consequently, what we are seeking to do is fulfil the work of the ODA to the maximum and then look and see what else can be done. That is the principle whereby we use our Government grants in developing countries freely to do what we (or eventually the Board) consider to be appropriate and complementary to what is regarded as the programme we do for the ODA—thus the library and information services, plus English language teaching, plus the preliminary stages in the identification of projects, and all that is likely to be funded by the grant-in-aid.

85. The word has gone forth that the environment is on the very highest line, are there suggestions from ODA or anybody that really you should spend more resources on funding activities to support forests or something like that? Does that message come through?

(*Mr Francis*) It could either come from the ODA, who have themselves identified a project with which we might become involved, or it might come from our own officers and specialists or perhaps, more likely, from our own contacts. I am just back from Brazil and could quote you an example of that where in fact it is the Brazilian side which is coming up with ideas which we may be able to implement, although in the end it is something which would involve ODA.

86. And the Foreign Office would not say, "This is a frightfully hot potato"?

(*Mr Francis*) The Foreign Office is involved in the identification and design or the thinking. In fact the ambassador in Brazilia is party to this. On the relationship with the ODA perhaps I could ask Mr Vale to comment?

(*Mr Vale*) I think there are two dimensions to the relationship between the two organisations. First, there is a community of interest. The second is that the Council has an operational capacity, particularly overseas, which of course is extremely useful to the ODA which is a UK ministry based principally in the United Kingdom. That is historically why the relationship developed. If one looks at the Council's

aims and objectives and applies them to the circumstances of a particular country, the word which I like to use is relevance; what the Council has to do in a particular country has to be relevant to its economic development, its academic development, and indeed to its long term historical relationship with the UK. When you apply this doctrine of relevance to the needs and circumstances of third countries, then it becomes perfectly clear that Council objectives when applied, for example, to countries like Bangladesh and Malawi inevitably mean an involvement in technical co-operation. In other words, we work for ODA not because we want the money, but because we regard it as a legitimate Council activity. We regard it in a sense as "our" activity. There is of course the second dimension—that the ODA like the World Bank requires an implementing agent, an implementing agent which has all three of the elements required of a good aid agency. These are, first, a knowledgeable and sensitive field force which is in continuous contact with local authorities and which has the ability, if necessary, to short-circuit local bureaucracies, and can understand what is possible and what is not possible in any particular national context. This the Council endeavours to provide and, I would say, does provide. The second thing an aid agency needs is an apparatus in the United Kingdom which knows the whole range of British resources and is therefore able to identify appropriate institutions, places and individuals in order to match them against the needs which come in from overseas. The third thing is a delivery system, that is an administrative system which links the defined overseas need with the UK resource, and which, in terms of training, gets trainees into the right place so that their educational experience is beneficial. These are the fundamental reasons for the development of the relationship between us and the ODA; but what one must stress is that the policy judgment remains with the ODA. It is the ODA's policy and it is the ODA's money. The Council's first rôle is to interpret the local dimension, and to introduce into ODA policy-making this very important aspect. Our second rôle is to deliver the goods to the ODA's specifications, and to provide the service they require at the price they wish to pay.

Lord Butterworth

87. Am I right in saying that the ODA does not carry out projects itself but relies on some agent to do it and you are frequently that agent?

(*Mr Vale*) Yes, that is largely the case. Clearly, the ODA has an operational capacity, but it cannot run all its own projects; so like the World Bank, and similar organisations, it sub-contracts in various ways and devolves the management of projects to other entities, including the British Council.

88. Can you give us an example of how it works?

(*Dr Kemp*) To take the case of India, there are a large number of projects we are actively involved in managing. There is currently a group operating at the Indian Institute of Technology in Delhi which

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued

[Lord Butterworth *Contd*]

we are managing on behalf of ODA. These are projects in fields like optical fibres, the research application side, micro-processors, instrumentation, instrument design, atmospheric modelling and a number of other things.

89. This is a British group?

(*Dr Kemp*) The project is in the Indian Institute of Technology in Delhi. ODA have decided that this is the right sort of institution operating at the right level through their normal appraisal mechanism to invest this sort of money in the training of high-level technologists in India, because this is very important to their economy. ODA have appraised it and have agreed it makes sense, following a request from the Indian Government. The Indian Government said, "We want British involvement in this field; we think you have the right skills to have an impact in this area". The ODA made a decision and then turned to us and said, "British Council, could you field manage this on our behalf. By that we mean we want you to manage it; you bring in the consultants; you give advice and set up the training; you organise the ordering and delivery of the equipment." That is an area on which we might dwell later on.

Lord Shackleton

90. Who finds the consultants?

(*Dr Kemp*) We do. We use our specialist advisers in-house and their knowledge of the precise requirements, and that information is then fed back to us.

Chairman

91. The ODA provides all the funds?

(*Dr Kemp*) Yes.

92. There is no strain on your funds?

(*Dr Kemp*) No.

93. Your role is that of manager?

(*Dr Kemp*) Yes. They pay all our running costs, and I certainly rigorously log all of my time against the work done on the particular project.

94. Do they make a contribution to your overheads?

(*Dr Kemp*) Yes—the amount of the overheads attributable to my time.

Lord Shackleton

95. No governments approach you directly and say, "We would like you to help us"?

(*Mr Thompson*) Yes, they do it all the time.

Chairman

96. What happens as far as the ODA is concerned? Do you say, "We think you should be interested in this"?

(*Mr Vale*) Yes, or we say, "Don't touch it".

Lord Shackleton

97. I know you do not give any money to the Falkland Islands, which is my particular interest. They have made a mess of the fishing arrangements.

It is remarkable how well they did in the circumstances. If the Falkland Islands, which are now rolling in money, said, "We do not know how to handle this", would you be the people to approach, or would it be the Crown Agents?

(*Mr Vale*) I think I would stress the point made earlier.

98. Take another part of the world.

(*Mr Vale*) The Council is very strong on the ground. We have 250 people like Dr Kemp and other colleagues who are on the spot the whole time. Their first duty is to understand and know thoroughly the country in which they are located, particularly its ideas, capacities and structures in the field of culture, education, science and technology. Inevitably, this means week-to-week and day-to-day contact with local officials, scientists and educationalists, many of whom have been trained in Britain. During the course of a year many ideas will emerge and we will present to the ODA those ideas in which they may be interested at policy level, and our contacts at local level will be a way of funnelling a local dimension into the policy-making process.

(*Mr Francis*) Dr Kemp was talking of an identified project which had been designed and which we had been given the task of managing. Of course, before that the ODA contributes to the Council's mixed money, the grant-in-aid derived from the FCO and ODA, and that grant-in-aid is banded in every country, such that in developing countries it is quite normal for the ODA to pay the lion's share of the grant-in-aid.

Chairman

99. Of your grant-in-aid?

(*Mr Francis*) Yes; in other words, there will be a nominal banding which might be 90 per cent ODA and 10 per cent FCO. What it means is that the ODA has contributed to the overheads of the Council itself before it contracts with us to do agency work, and the ODA element of our grant-in-aid is very relevant to our work in the whole of the developing world.

100. Is that an efficient arrangement? It seems there are two post-box operations; money is passing from the ODA to you as a general grant-in-aid, and some is coming from the FCO. Is that efficient?

(*Mr Francis*) In point of fact, the grant-in-aid we call "mixed money"; it is derived from these sources; it is adjusted each year on a fairly mechanistic basis. Having said that, consideration could be given to our having a single grant-in-aid. At the moment, we derive our grant-in-aid in part from the FCO diplomatic vote and in part from the aid vote, but all our money could come from the FCO diplomatic vote.

101. But in some cases the majority of the money comes from the FCO?

(*Mr Francis*) Once we have been allocated what I call the mixed money it is for us to disburse it according to the policies of the Board, so we do not look at a country and say, "We have done all the work we can there; we have done x per cent", because the banding arrangement is a nominal one.

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued]

[Chairman *Contd*]

102. Do you feel that possibly the ODA interfere a lot more in what you do than, say, the World Bank, and is that a problem or a fact of life?

(*Mr Thompson*) There was no implication in what I said earlier that ODA interferes in that sense, but there is inevitably a triangular conflict of interest. They are undoubtedly trying to implement policies of theirs in a given country as well as the policy of that particular country, and I am sure anyone who has seen this in practice will know that these conflicts do arise.

Lord Perry of Walton

103. I want to come back to the question of appraisal by ODA which you rather skirted over. You have these people on the ground, they have not got anybody on the ground, how do they appraise satisfactorily without using you?

(*Mr Thompson*) They parachute specialists in and we present as much evidence to them as we can, sitting side by side with the developing country government.

104. Is that efficient?

(*Mr Thompson*) I think it is very reasonable, in fact multilateral agencies operate in a similar way except they have been involved in the process all along. Of course when a multilateral reaches the stage of appraisal and agrees to go ahead with a project, it is handed over to the government as its total responsibility, whereas ODA still retain a supervisory interest.

(*Dr Kemp*) I know very well Lord Perry's interest in this. I think the thing to stress on this is it is not just ODA who appraise the project, they do bring in a specialist from the UK resources who is a true specialist in the subject area to support their own subject advisers, but their environmental adviser cannot cover every single issue so they have to bring in the person who might be interested in the rehabilitation for derelict land, say. Then there is a professional as well as an economic dimension to the appraisal and we would sometimes be involved in supporting that, but that is not normally our role.

(*Mr Vale*) I think it might be useful if we talked about what a project actually is, if we define some of our terms. Actually a project is a package of resources with a set timescale and set sum of money. There are five classic stages in the project process. The first is identification. The second is design or formulation that is deciding exactly what you want to do and constructing setting up the answer to the particular developmental problem. The third stage is appraisal. The fourth stage is implementation, that is doing it. The fifth stage is evaluation. The stages at which the Council comes into play are principally at the design or formulation stage, and at the implementation stage. Evaluation is clearly for the ODA to carry out in whichever form they think is appropriate, either using their own experts or buying them in from outside. Similarly appraisal—that is whether the ODA wishes to back it with money—is for them to decide. Similarly the identification stage. The decision on which target to go for is ODA's, but

identification inevitably reflects the local situation, so the British Council does play a role in the development of ODA policy making and ODA targeting. But we are not the only people involved of course. ODA have their own professional advisers and there are Development Divisions in certain parts of the world who have an input. Then there are aid sections in some High Commissions which also have an interest.

Chairman

105. Would you like to be more involved in the evaluation stage?

(*Mr Vale*) I think we are more concerned with getting the implementation right. This is what work with projects is really about: doing them and executing them efficiently and successfully and this is where the Council's strength really lies.

(*Mr Francis*) Perhaps Dr Kemp could come in here because we manage a greater range of projects, covering more subject areas and to a greater extent, in India than any other country in the world.

(*Dr Kemp*) Starting off with the last stage, which is evaluation, I do not think we should be involved in evaluation, I do not think it should be the province of the field managers to evaluate their own activities. You need that external objectivity, and ODA recognises this and tends not to evaluate itself but whenever it can it buys in the external specialist. That is perfectly right. Going back to the start, the identification phase, actually we are involved at pre-identification because we in India have such a strong team on the ground in both numbers as well as expertise; a lot of them local staff. Our strength is really the local staff, the professional local staff. We employ scientists, educationalists et cetera, and they have much closer relations through a long term involvement with the British Council in those countries than many of our overseas staff, the London staff. It is their ear to the ground which really can help throw up objectives. We are working with them, know the UK dimension and constraints of the UK policy, and can work with them to develop these activities. Then when the ODA comes in on a formal identification mission, which it will do often at the request of the overseas government, we will have prepared a lot of the ground, done some of the preliminary paperwork, saying, "This looks good, this is how it will impact on the labour market", and we can help in that way. Then we move on.

Lord Shackleton

106. When you talk about evaluation, you mean before?

(*Dr Kemp*) After.

107. Is that not the role of the project manager to a large extent?

(*Dr Kemp*) In fact you are absolutely right, I think it is just terminological differences. We continuously evaluate as we are implementing a project but we call it monitoring. That is monitoring the implementation. Anything that is post fact we refer to as evaluation. It is just straight forward definitions.

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued

Lord Taylor of Blackburn

108. You are supplementary to the ODA? Is that the way in which you are going?

(Mr Vale) We would say complementary.

Lord Thurlow

109. Could I ask one point about the level of your locally engaged people in India? Do you recruit Indians at every kind of level, professional and other expertise?

(Dr Kemp) Absolutely, yes. Just going through the staff, we have PhDs in natural resources development, in physics, a number with degrees in the sciences and in agriculture, with agricultural banking backgrounds; a whole range of different areas. Now we are recruiting more on the health services side as well as down to the basic admin. support, but it is again a complementary relationship with the London specialist work.

110. And they are there practically for life, are they?

(Dr Kemp) Our Indian staff are because the labour market in India does not have a high turnover.

(Dr Howell) However they do not all stay with us because they are very highly regarded in the labour market in India. One of our former staff is now the chief technical education adviser to the Government of India.

Lord Shackleton

111. What proportion of your activity is non-aid? For instance, in some places where the Foreign Office cannot afford scientific counsellors they use the British Council and I noticed this very strongly in Pakistan when we had a big Royal Geographical Society expedition into the Karakorams. By the way, Mr Latter is doing a splendid job advising the embassy there. How much of your work is not aid?

(Mr Francis) With reference to Annex 7 at the back of our written evidence, we give the figures for aid recipient countries—some 50 countries. You will see that it is 35 per cent in the field of science and technology, and against that 29 per cent is spent on education and social sciences, 23 per cent on the English language and some 13 per cent on the arts. Those are percentages of all the Council's grants, namely, the ODA grant-in-aid plus other ODA elements of grant—aid administration grant, ex-IUC grant and ex-TETOC grant. Science and technology is the largest single area.

(Mr Vale) The split between developing and developed countries is about 50-50. Almost half of our total budget, as it were, is aid-based in one way or another.

Lord Butterworth] What trends do you foresee in the United Kingdom's ability to respond to the needs of developing countries in the next 10 years? What actions might be taken now to increase the United Kingdom's capability in this respect? How do you see this side of scientific and technological development, and what ought we to be doing now, or what ought

other institutions be doing now, to encourage the UK's ability to respond over the next 10 years?

Lord Shackleton

112. In addition, what changes do you anticipate in the needs of developing countries?

(Dr Howell) If you are linking in that last point as well, this is a pretty complex area. Focussing on research in the United Kingdom on key items or sectors where we aim to be at the top, or close to the top, of having recognised expertise in those fields, undoubtedly that is a factor which is attractive to people in third world countries. When they are trying to relate to science and technology internationally they do tend to look for the leading edge of science and technology, at the areas in which it is concentrated, and having people of recognised top quality actually gives us a base from which to assist those countries. However, if it results in a narrowing of the total base we can provide at the sharp-end or front-end of science and technology this may have the consequence of diminishing our ability to help them in some other areas, because we put rather less resources into them. The third factor is that in some areas there are several science and technology problems in developing countries that in a sense need steady support and analysis in their own right. We have some facilities in this country which have for a long time been focused in that direction. One can take the example of the ODA's support for the Overseas Development Natural Resources Institute (ODNRI) and their support for the two centres for tropical medicine in this country, one in Liverpool and one in London. There is a small range of other specialisms supported by the ODA in university departments in this country, like the one concerned with water resources based at Stirling University. One of the actions which might be contemplated is a further growth in development capacity aimed at overseas development problems in the field of science and technology. If in the context of research and development in this country there is a restriction on access, if that is the right word, to general funds, and funds are more specifically tied to particular outcomes and particular projects, the capacity of research teams to respond to more general demands outside that field will inevitably be restricted. Therefore, if we wish to make that expertise available internationally for development purposes there has to be some more conscious funding of expertise for these specific purposes.

Lord Butterworth

113. I suppose all this comes back to the question about future relationships with the universities and polytechnics, because that is where a lot of the expertise has to come from?

(Dr Howell) Indeed.

114. Would you like to comment on that? I am thinking of the question of how we should prepare for the future and how we get the relationship right to give better service over the next 10 years?

(Dr Howell) You are right. At the interface

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued

[Lord Butterworth *Contd*]

between ourselves and the ODA are the universities and the polytechnics, because it is on the universities and polytechnics in the majority of cases that we depend entirely for the delivery of projects in the field. We have stressed the extent to which we are an interface between UK expertise and the needs for development overseas. If we are to think in terms of specific topics—water resources, agricultural development, biotechnology and environmental control—and if we feel we have something to offer to the developing world in those fields, we have to have a fairly positive attitude towards maintaining and in some cases creating the capacity to allow that commitment to the developing world to be followed through. Under the present arrangements, people who come to work for us work for ODA on specific projects and are doing it as an additional element of their normal work. They increasingly charge us fees because they are subject to financial disciplines of their own. There is a general willingness to work with us for ODA and with ODA, but that is limited by the extent to which they can make time available, and sometimes that may conflict with other money-earning activities in which they are engaged. If you are to have a commitment to development you have to agree to fund it to some extent. That is happening in some selected areas. I think there are other areas where that approach should be used or enlarged.

Lord Thurlow

115. Could you repeat the particular areas of interest?

(Dr Howell) I am suggesting that environmental control and biotechnology would be of considerable interest to developing countries, and it would include a whole range of fermentation technologies, vaccine production, and so on.

Lord Butterworth

116. Can you give an example of where biotechnological techniques have been transferred to developing countries or to universities in developing countries?

(Mr Thompson) I could quote the example of maize drying in Thailand and aflatoxin.

117. Can you explain what that is?

(Mr Thompson) No, I cannot.

118. As it is it does not mean anything to me.

(Mr Thompson) The process of drying maize after it has been picked and preserving it under the sort of conditions prevailing in Thailand has led to a large amount being wasted.

(Dr Kemp) I do not want to bore you with India, but there are a number of examples there: for example, recombinant DNA technology. The ODA are in the process of appraising projects there.

119. Where was the project applied in India?

(Dr Kemp) Through the Indian Veterinary Research Association and through the Indian Council for Agriculture. The ODA are in the process of appraising projects there.

120. But where was the work carried out?

(Dr Kemp) In India, in the research institutions. The idea is to get the equipment and appoint consultants from the UK and send people for training in Britain. We are only at the appraisal stage; we have a project on the stocks and it has just started.

121. Where can we get the researchers from in this country? Where do the consultants come from?

(Dr Kemp) From the university sector.

122. Where? Which university?

(Dr Kemp) I cannot remember on that one, I am sorry it is not one I have been managing personally.¹ We sent out 18 months ago a request to SERC to put together a team to look at how we could use British Council mixed money to input into technology. SERC put together a team to advise us and advise the Indian Government on how best to gain access to the UK expertise, and I think it was led by their own secretary of the Biotechnology Committee, Dr Potter, and five representatives from British universities who came out and they have now identified a number of Indian institutes in which they wish to work. The Indian counterparts have just returned from a visit to Britain following this through and now again we are in the process of formulating projects in these areas, and we have just had formal statements. We would use the Biotechnology Centre at North London Polytechnic, the Biocentre at Leicester University and the Centre for Applied Microbiology and Research, Salsbury. Representatives from those were involved and they were advised specifically by SERC.

123. This was out of your mixed money? This was not an ODA project?

(Dr Kemp) No.

124. It was your initiative?

(Dr Kemp) Yes.

125. Where did that initiative start? In London or with you in Delhi?

(Dr Kemp) It started with us in Delhi. What we find it difficult to do in India is say no. We are always getting people wanting to do things, so we had to come up with a policy to spend our money in the science and technology area, and we sat down with the Indian side and said, "What should policy priorities be?". Do you want me to explain this?

126. Yes.

(Dr Kemp) We said first of all it should be something that would have a direct impact on socio-economic development in India. Secondly, India should have the capacity and infrastructure to participate in this area. Thirdly, the UK should have an expertise and infrastructure to support activities in this area. Fourthly, sufficient political or economic benefit should accrue to Britain through involvement in this area.

¹Note by the witness:

"The institute involved in the Recombinant DNA Project is the Institute of Animal Health, Pirbright."

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued

[Lord Butterworth *Contd*]

127. Whom did you negotiate with in Delhi? The University Grants Committee?

(*Dr Kemp*) No, we went to a whole range of different people, people we knew personally.

128. And the University Grants Committee will permit that?

(*Dr Kemp*) Yes, we presented it to them. We wrote to them saying that we would wish to encourage future links in this area, and they said, "Fine, thank you, that looks very good". Biotechnology was one of the areas we chose. Then we went to SERC and said, "Where would you push us to work in India?". Materials. We are looking at materials from all angles, both the ferrous and other metals, the composites, the polymers and plastics and ceramics and trying to see all the areas. Environmental pollution science, computation and control, cancer, both from diagnosis as well as the treatment side.

Chairman

129. It is a very wide field.

(*Dr Kemp*) Each one is specific and we set ourselves a maximum of ten.

(*Dr Howell*) In a sense linked to Lord Butterworth's question about the relationship between universities and polytechnics: the type of studies that overseas scientists and technologists are seeking in this country are changing with time and the days when the predominant feature was under-graduate study in this country have long since gone. It has moved from there to masters degrees, to strong requests for study at PhD level and at post-doctorate level, and that is because their own needs and their own assets have become more complex and sophisticated.

Lord Butterworth

130. And their own universities can take the under-graduate burden anyway?

(*Dr Howell*) That is where a lot of the basic teaching is possible in their own countries. However there are difficulties about assimilating PhD studies in this country with people overseas because there is a rather important factor here, that the topics undertaken for PhDs should be relevant to their particular country; they should not slot into a British research team. In some cases, if it is theoretical physics, if that is appropriate to the country, then that is theoretical physics whether it is done here or Nigeria, but they are much more related to direct development. Therefore you have to take very careful account of the needs of the student and their country in trying to design PhDs. One of the interesting things is the growth of split PhDs, whereby part is conducted in the local country under joint supervision on specific topics of relevance to the country, and that is a very fruitful trend. One needs to be aware of this. It is a changing pattern of study, and I find our universities very sensitive and reactive to this, though it is an evolutionary process.

Chairman

131. We are going to visit the ODNRI at Chatham. How do you decide whether to use the facilities of that Institute or of universities?

(*Dr Howell*) In many cases the new areas which ODA is choosing to support are actually in universities. There is a long tradition of doing this in ODA. Two or three decades ago their main focus was on maintaining specific posts in education departments in seven or eight education centres in this country. In recent years they began to support additional posts in specific departments of particular interest to them, for example Stirling University.

132. Are these specialist institutions, which I understand are supported almost entirely by ODA, necessary? Are they still useful or could the necessary knowledge be obtained from the universities?

(*Dr Howell*) I would be giving you very much a personal view, but I would say they are very useful and needed because they are specific. While interested, universities would not have predominant or strong interests, and these are of considerable concern to the developing world.

133. So they have special knowledge?

(*Dr Howell*) Yes, they are complementary to the more general approach of the research side. I hold that view very strongly.

Lord Taylor of Blackburn

134. Do you see current pressures on research in the general university field progressively cramping your style in being able to draw on the kind of level of scientific and technical skills you want to recruit?

(*Dr Howell*) I would hope not but I fear it will, and there are already indications that we are in a sense having to compete for the skills and expertise and knowledge available with other priorities which the universities may place on their staff, including that of earning additional funds for the university. So in the development work we have a difficult situation. If they go down that road to the extent they are being forced, where the financial return for the exercise is a major factor, we will certainly find great difficulty in deploying more UK expertise which up to now has been made freely available, and I mean that both in the financial and commitment sense. The commitment and interest of the individuals is there but it is no longer so freely available in cash terms.

(*Mr Francis*) If I might make one comment as a frequent traveller and visitor to our overseas posts, I have discovered that a great deal of the institutions in this country have a high reputation in overseas countries, and therefore there is a tendency on the part of academics, scientists and others to link with those institutions. On the other hand, there are a number of polytechnics in particular in this country which have developed courses which would be equally susceptible to the needs of other countries, but I have to say there is a certain bias, and I think it stems from nomenclature. There is prejudice against polytechnics because they are seen as being

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued]

[Lord Taylor of Blackburn *Contd*]

somewhat lower than universities, and I think that to some extent the title "polytechnic" is responsible for that. Other countries use titles like "polytechnic universities" and "technical universities", and they are seen as universities. I think we do ourselves a disservice in that respect.

Chairman

135. The whole balance between polytechnics and universities has changed over the past 10 years; the perception has lagged behind the change?

(Mr Francis) Yes, absolutely.

136. What trends are visible in ODA activities involving the British Council in relation to STA?

(Mr Vale) I think there are two things visible to us. First of all, it appears that the sectors at which ODA aid is principally directed are beginning to change; it looks as if the main targets for aid in the past, like roads, mines, dams and energy production, are declining in importance. Now greater emphasis is being placed on things like renewable natural resources, with particular stress being placed on environmental considerations; on the development of transport, communications and infrastructure, but of a much more flexible type than great highways; and on large social and community services like rural development, public health, education and indeed management studies. One also notices that there is a much greater interdisciplinary approach in these sectors as well. The second thing we have noticed, is the change which is taking place in the methodology of aid delivery. Ten or 20 years ago technical co-operation—and that is really the business we are in—was delivered through applying a battery of self-contained global schemes. There was a scheme for exporting expertise, a scheme for training, a scheme for books etc, and the skill at that time was to cobble those things together in the best possible way. That old style of aid has been almost entirely overtaken by the project approach, and it is obvious there are many advantages to this. First of all, it enables us to provide an open-ended answer to a particular developmental question. One of the problems before was that often the response was pre-determined by the nature of the schemes that were available. Projects are a complete package of resources in which the impact of the whole is greater than the sum total of all the component parts. They also enable technical cooperation inputs to achieve critical mass and give the aid agency a greater chance of achieving self-sustaining change and overcoming the formidable obstacles of conservatism and inertia. In addition projects require a tight methodology with precise criteria and objectives, and clearly defined timescales and budgets, so by the nature of things the project approach conforms to the value for money principles which the Government requires of the public service. This change in methodology is one we welcome because the Council has fairly substantial experience of project work, particularly in conjunction with the World Bank, and the clarification of roles as between ourselves and the ODA, which is

the result of these very important changes, is something we welcome.

(Mr Francis) As of last year, in our first corporate plan we have taken the initiative in seeking to work for the ODA on a fixed price contract basis for an agreed level of service, so this is a fundamental change in the relationship.

Lord Thurlow

137. Could we come back to the question you touched on a bit earlier in relation to the question of bilateral and multilateral aid? How successful is the British Council, relative to similar institutions in the rest of the world, in competing for contracts from overseas governments and multilateral agencies? How might the current level of success be increased by changes in the procedures and practices of ODA and other British funding agencies? I was very interested indeed in your comment in 4.5.1, where you mention that the Council has sometimes found itself at a disadvantage in competing for projects against competition because its competitors can count on active co-financing or subsidy support from the official bilateral aid programme. Can you elaborate on that kind of thing?

(Mr Thompson) The subsidies we are referring to there are ones which particularly the French, Americans and Australians provide to agencies comparable with the British Council when they are competing for technical assistance contracts within multilaterally-funded projects. They will explicitly make scholarships available perhaps on a one-to-one basis. If a particular project has a provision for 20 postgraduate fellowships to be undertaken the French will say, for example, "We will give you 20 more if you give us the contract". Because of the way British aid is planned we understand perfectly well it is extremely difficult for the ODA to respond to a request we might make to them to compete in that sense. However, there are situations where they do respond and where indeed they have taken the initiative and we do not have to make a request to them. There are also situations where the FCO has agreed to use its FCO scholarships and award schemes in the way I have described, but in neither category is that a global policy either on the part of the ODA or on the part of the FCO; it depends on the individual economic policy. As I am sure you are aware, both the ODA and FCO, as far as developing countries are concerned, insist on having country-specific policies, and that we understand. The benefit we see likely to accrue to Britain is probably more commercial than either aid or political, and we suggest this is something which has not yet really been taken on board. The finger clearly points at the DTI as a candidate for looking for some British benefit in this particular category, and we are certainly in discussion with them to try to make that point. I might say, in case Members of the Committee are not aware of it, that the DTI is initiating a scholarship programme in developing countries this coming financial year on a pilot basis.

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued

Lord Thurlow

138. On a considerable scale?

(Mr Thompson) It is not on a considerable scale in the first financial year. It is intended to be a 50-50 scheme involving the private sector. Everybody concerned wants to test the water in the first year rather than rush into it on a large scale, but if it is successful it is intended to increase it substantially in subsequent years.

139. You took as your example the way we are rather limping behind some of our competitors in these fields. The grant of scholarships by France and Australia is actually a subsidy to enable their agencies to undercut us, in the same way that interest rates are used when competing for commercial contracts.

(Mr Thompson) As you may imagine, it is difficult to get your hands on hard evidence of that, but certainly the British Council's prices quoted in the bids we have made are absolutely rock bottom, and we cannot imagine that any of our competitors are making any profits from the prices they quote, so it is fair to assume that the answer is yes.

(Mr Francis) There are some instances where they tack on free English language teaching outside the project, and that acts as quite a powerful incentive.

(Mr Vale) I think it is wrong to have the impression that the British Council is limping behind its competitors; that is by no means the case.

140. No, I would not wish to suggest that.

(Mr Vale) The British Council is a pretty nimble organisation, we are always looking for new opportunities. When the price of oil went up in 1974 we realised the whole game of international relations and aid had changed, because for the first time we would be working in countries which were poor in human resources but actually had money. So we began to develop techniques whereby we provided educational services but at the expense of the recipient government—Saudi Arabia, Venezuela, Nigeria, for example. Then the World Bank came on stream, and in the late 1970s was doing exactly the same kind of things we were interested in. In addition it was looking for an implementing agency and particularly for one in Britain because our system is decentralised and it was difficult for the Bank to lock into British resources. The Council therefore moved into this vacuum, became the promoter of British educational resources with the Bank, and has done well ever since. Some years ago when the pound became inconveniently strong for us, British costs began to rise, and the competition—the French, the Germans, the Swedes—began to catch up. We noticed with concern that many of our competitors were subsidising their own packages through training paid for by their governments. But business perked up again and we are doing pretty well. So although we are very conscious of this element of subsidy by competitors, we are not unduly worried at the moment and have not made a comprehensive case to the ODA for similar treatment.

Chairman

141. Mr Thompson mentioned the DTI. Were you saying you hoped the DTI would provide some hidden subsidies to help you, or attractions to your clients, to help you meet the competition you described?

(Mr Thompson) My reason for referring to that is that we recognise it is not entirely a legitimate target to expect ODA to do. The reason we see many projects as being beneficial is that they lead to commercial benefit for Britain, and it is not necessarily the aid objective of the project which has the greatest merit.

142. But it would be of value to the country and also of value to us, and therefore you would hope the DTI would help you in that respect?

(Mr Thompson) And it may well be in a sector which ODA and the recipient government have not agreed to treat as a priority for British bilateral aid. So one knows perfectly well there is no point in turning to ODA. There have been cases though where ODA has already committed itself to co-financing particular projects which may have been university development projects or technician training projects, and where the fact that ODA had co-financed the project automatically led to us being able to secure the implementation and the World Bank funding component of that same project.

143. Will the DTI want ODA funds to be used for that purpose or will they provide extra funds and resources themselves?

(Mr Thompson) I do not think I could speculate as to whether they will. We are in the early days of discussing the issue with them at the moment, but they are proving very receptive to the idea that more must be done about providing scholarships to people who will be of potential commercial benefit rather than any other.

144. In days gone by there used to be a lot of scholarships here, and when I was working in the electrical industry this was an important source of strength. They came over here, we told them how we did things, they did training in a British manufacturing firm and then went back to their countries and then looked to British suppliers if they became the managing director of an electricity corporation. Is that coming back, because it went down a lot when there was a cutting-back on the funds available?

(Mr Thompson) That is what seems to be coming back. The new momentum for it is that there will be 50 per cent funding from the private sector, and there is a good deal of initiative coming forward from industry as well as the DTI side.

145. Is this the hope for the future?

(Mr Thompson) They have committed from both sides for 1989-90 half a million pounds. I did not answer the initial part of the question, but perhaps I may briefly say we believe we are in the top ten internationally as far as the number of contracts that we have won recently is concerned. In the last two years we have won 14 out of the 35 we have bid for,

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued

[Chairman Contd]

and I think members of the Committee who have contact with consulting firms would agree that is rather better than many consultant firms expect to manage, about two in five.

146. How do you ensure that training given in the United Kingdom will be appropriate and useful to the trainee's work? How do you determine priorities in that respect?

(Mr Vale) May I refer back to some of the comments we made earlier when we were discussing the ODA relationship? The answer to this question lies in the tripartite nature of the Council's role—the sensitive field forces which really understand the educational systems in which we work and can, within the context of ODA policy, select the right people from the right fields or the right projects for training. Secondly, the back-up system which enables us to identify exactly the right resources in the UK to satisfy this overseas need, or if necessary can commission a new course or training programme. Thirdly, of course, the administrative system which places the trainees, ensures their social and academic success, and follows them up after return. The question of priority choices is interesting because it reinforces the need for both Council and ODA to have a country based policy. Many years ago U Thant described development as "growth plus change". Those of us working in the field of aid are concerned with the "change" aspect; and those of us working in technical co-operation are dealing with the most difficult aspect of change because we are dealing with individuals, their levels of knowledge, their value systems and all the rest. Therefore the local dimension is an extremely important determinant of what aid agencies do in the field and of the priorities they select. As we mentioned before the ODA has very clear and necessary mechanisms for deciding on country policy and for identifying targets. There are many elements brought into play—ODA advisers, development divisions, ourselves, UK consultants. The Council's particular offering is an understanding of the local dimension, although sometimes there are specialist considerations as well.

Lord Butterworth

147. I think in answer to the Lord Chairman's question, you imply that people being brought over here for training was largely in the pattern of the past, which implied first degrees going back and then getting responsibility, but at an earlier point I understood someone to say that there had been a very significant change and that the training now tended to be more sophisticated, masters degrees, PhDs, even post-doctoral training. Could we get this cleared up?

(Dr Howell) I did say that.

(Mr Vale) You are right, Lord Butterworth. At the moment the training programme is broadly aimed at two levels. I think that about 50 per cent is made up of post-graduate training of one kind or another: in other words high level specialisation for

people who have already got their first degrees, probably in their home countries. The rest of the training programme tends to be practically orientated; some of it providing industrial training, and it is aimed particularly at attacking the shortage of middle level skills in third world countries. As you know, a major problem in the developing world is that although there are growing numbers of doctors and engineers, they do not have the middle level technical support they need to make them effective. Many of our existing projects are looking at this area: in other words, not aimed at the undergraduate level.

148. I am thinking of the middle level people. Might it not be more advantageous to try to train them in their own country rather than bring them to institutions in this country?

(Mr Francis) We do both; it is a question of constantly balancing the factors.

149. There has been quite a bit of interest developing in training in the country concerned.

(Dr Howell) There are a number of elements. One is the question of the relevance of the training. It is sometimes difficult to recreate in this country the conditions under which the training can be delivered with the most beneficial effect. On the other hand, if the volume of training to be delivered is comparatively small the cost of setting up the training facility in the overseas country can be disproportionate to the amount of training required, so it is an interplay between those factors. Hence, even in the university sector, in deciding whether or not in a small country it is right to set up a faculty of engineering one has to look at the general needs of the country and the likely employability of engineers, whether it is right to set up a faculty which produces 30–50 engineers a year because the country needs that volume of production to sustain its developmental growth, or whether, if it happens to be a small country and the output would only be a dozen, the cost of setting up a faculty would be far in excess of the value of the output to the country concerned and it would therefore be more efficient to train them in the United Kingdom.

Chairman] I think that is a significant argument for the high-level graduates, but Lord Butterworth is, I think, talking about technician training. The great advantage of doing it locally is that because you build up a cadre of trainers you can carry it on much more cheaply and get better value for money.

Lord Butterworth

150. I remember an interesting operation in Egypt concerned with the training of technicians to work in the electricity industry.

(Mr Vale) Yes. One should explain that a good deal of our projects are concerned with developing indigenous training institutions. The long-term effect of a lot of our efforts is to produce a local training capacity, and the example Lord Butterworth mentioned is a case in point. We have had a contract in Egypt for some years to help develop a

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued

[Lord Butterworth *Contd*]

training facility for the Egyptian Electricity Authority at Abu Qir, where incidentally Nelson sank the French fleet many years ago. The project itself has involved the training of the teaching staff and instructors, and it has proved to be more convenient to bring them to the United Kingdom in order to train them on simulators and to see the actual operation of power stations and the training situation in this country.

151. And they go back to train their own people on the ground in Egypt?

(Mr Vale) Yes.

(Mr Francis) To make one comment which may not necessarily be relevant to the subject we are discussing today, in the field of the training of television technicians, although in fact they are going to go back to train their own people on their own limited equipment, in many cases they have expressed the desire to come to Britain to see the more sophisticated state of the art. This is all to do with aspirations. If it is the case that some of them will become the chief engineers of their own television stations in a few years it is very important they should be exposed to the highest state of the art in the context of the United Kingdom.

Lord Shackleton

152. How far are you aware of action by the private sector? I know of one company directly—and I am sure some of the other big companies do the same—which is consciously setting out to educate and train people, and not always in the particular industry concerned. I know of one company in Namibia which has been training people in agricultural production. How far is the private sector a factor in this, particularly when it comes to technician training? Are there any figures on the size of the contribution made by the private sector?

(Mr Francis) We are conscious of the potential and the need to have closer links with the private sector.

153. We are asking for evidence from some big private sector firms. One was unaware how much they were doing when I enquired.

(Mr Thompson) We are well aware that there is more done by private sector firms probably than by the bilateral aid programme when you put it all together. We cannot give you authoritative figures. However, we know that under the aid programme there are about 600 people a year who come here under ODA funding strictly for industrial training. Of the people who come here for postgraduate training, quite a large proportion also go on and do some programmes of practical attachment afterwards, and in the British Council we keep a register of about 1,200 firms who are known to provide that sort of practical attachment programme. We know they are doing it because they are doing it under other sources of funding, and the fact there are 1,200 firms means that the number must be greater than the 600 we send along with ODA money.

Chairman

154. When you say “industrial training”, do you mean training in the technical field?

(Mr Thompson) Yes.

155. It may be craft or technical training?

(Mr Thompson) Yes. I have brought along today a video tape on the subject—“The Practical Experience”—which you might like to see at your leisure, rather than that I bore you with the details now. People like Perkins Diesel, Port of Liverpool Authority and certainly the railways, BREL, have provided training. We could get into tedious detail. To mention India yet again, there is a project to develop coal-mining in India, and it has been necessary to bring several hundred technicians to Britain, because it has not been possible to find them working conditions in India which will prepare them for the relatively high-tech equipment which ODA is providing.

(Dr Kemp) Following Lord Butterworth’s question about development of training facilities in the country concerned, we had to do a lot of work in conjunction with British Mining Consultants, a private consultancy of British Coal.

Lord Butterworth

156. Is this concerned with sophisticated coal-cutting devices?

(Dr Kemp) Yes, for long wall mining.

157. In the Indian coal-mining industry?

(Dr Kemp) Yes, absolutely. This has been done in a combination of ways: first of all through a lot of training in the United Kingdom and, secondly, through putting together mechanised teams to work the long wall sets and conveyors, and at the same time we have set up a training gallery in one of the main pits in India with a simulated face and part of the conveyor system, so there is substantial low-level training occurring in that training gallery in India, whereas the more senior members are being trained in the South and North Yorkshire coalfields. We do similar things in the electricity power generation industry.

158. I thought that example was the most illuminating, because in that case you were acting as agents for the ODA. Who actually had the idea? Historically, how did it come about?

(Dr Kemp) I was in Calcutta when the first mission went out 10 years ago to look at it. It started with a member of TETOC—a DES mining advisory member. The original idea came about because the Indian Government were looking at long wall mining, but straight away it was apparent there was a complete shortage of people trained in the mechanised area, so we looked at the question of industrial training together with one of the DES’s mining education advisers, and from that flowed 15 years of training programmes.

Lord Shackleton

159. Lord Butterworth has very interestingly hijacked my question! Unfortunately I have to go

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued

[Lord Shackleton *Contd*]

but what I would like to know is the extent of this. You obviously have a general idea. I know certain companies where they are actually training people at advanced level in this country, and this is in the mining industry, and when I spoke to the RTZ public relations people about this they said, "How do I find this out?". I said, "They are your companies, you tell us, give us your evidence". Do we know the extent this is going on? This is only one and not necessarily the best example.

(*Mr Thompson*) I imagine the DTI, particularly its Projects and Export Policy Division, is probably the best channel to collect that kind of information. It is very clear it goes on on a very large scale, but I think our experience overseas is that it goes on on an even larger scale in other countries, particularly France and Germany, and therefore that there should be every encouragement to the private sector to do at least twice as much as it is already doing, however much it is.

(*Mr Francis*) Just as a footnote, it follows from the example of long wall mining that now there is a large sector of the Indian mining industry which is using British equipment.

Lord Shackleton] Exactly, yes.

Lord Taylor of Blackburn

160. Mind you, this is just in this particular field, because we have people coming from Ethiopia training in local government and people training in our police force and it goes on like that.

(*Mr Francis*) Yes.

Lord Thurlow

161. Can we now move to movements in the opposite direction, of us sending specialists to developing countries, and the circumstances and reasons you send these specialists, and the important question as to how far the presence of these specialists inhibits the growth of local capability. I wonder if in giving any illustrations you could refer to circumstances of some of the smaller developing countries rather than the mammoth one we have been dealing with?

(*Mr Francis*) In a sense we aim to send specialists at almost any stage, but the crucial stage is the initial stage and quite frequently there will be a hazy notion of what the country wants and the first stage is to send a British consultant out to focus that request. That is an example of identifying the project. We would send a specialist to any country of any size.

(*Mr Vale*) I am sure you will appreciate, my Lord Chairman, from what we have said up to now that many of the programmes and links and projects which the Council administers or manages overseas require inputs from British experts, particularly at the implementation or design stages. In the last year, as our figures show, there were something like 1,200 British experts working overseas, half of which are in the field of science and technology. The nature of their assignments varies according to the project and the task: some are giving specialist advice, some doing research, some specifying equipment, some

running courses, some involved in curriculum development. It is true to say however that, except in the field of English language teaching where there is a special requirement for native speakers, the vast majority of projects in the British Council's areas of concern, only rarely required experts to serve overseas for long periods. This is, to be resident for one year or two in the country in which we are working. Most of our experts go for short term assignments, either one-offs if identification is required, or in order to perform an identified role in a project package. This is not true of all technical co-operation activities of course; in some R&D projects run by ODA's specialised units there is a need for a long term presence on the spot, particularly where research activity or field work is required. Of course this does raise problems of dependency, and the difficulty of having long term British experts on the ground is that they can be taken for granted and it is difficult to find counterparts. All I can say is that we are very aware of this problem and certainly in the last decade ODA has done its best to ensure in the design of its projects and links that this danger is minimised. As you will see from the paper, self-sustaining activity is ODA's principle target.

Lord Butterworth

162. One of the interesting examples is the attempts that have been made to localise staff in overseas universities, and it seems to be a never-ending job because the more you train the more people seep from the university into the community, but the history of it has been one of great awareness that we have to increase the local staff in their own universities.

(*Mr Vale*) Yes, that is right. Where we do encounter problems it is really because of circumstances beyond our control. As you imply, Lord Butterworth, the difficulty with the education service is that it has always been a reservoir in which the private sector has fished in order to tempt people away into more lucrative employment. Also, in the first generation after independence it was the education service which furnished the occupants of most ministerial chairs, so there has always been a bleeding away from the science and technology field.

Lord Butterworth] Under your auspices, I have just come back from Lesotho and because I was interested in their highland project the Minister for Power gave a dinner on the first night I was there and I thought it was very interesting that three of the ministers present and the chap who ran the King's private office were all former members of the staff of the university.

163. It may be the British Council would like to say something to us about books and so on, and if so, feel free to do so, but I wonder what are the advantages to the United Kingdom and how they could be increased. I wondered whether the British Council might like to expand on the theme that what we do overseas is a partnership, and a partnership amongst equals?

22 March 1989]

MR RICHARD FRANCIS, MR BRIAN VALE, DR GARETH HOWELL,
MR HOWARD THOMPSON and DR NEIL KEMP

[Continued]

[Lord Butterworth *Contd*]

(*Dr Howell*) Yes, indeed, the development of science and technology, research and development as an activity is very much a partnership of minds. It may well be that people come to this partnership from an unequal basis, develop rapidly and share their own perceptions and increasingly we see the sort of linkage in the higher education sector as very much a partnership between the leading minds of individual countries in scientific, technical and other areas, attacking problems of relevance perhaps to their own countries and even more generally. Work for instance on approaching malaria and its treatment and containment, is maybe done in one country but of very great interest elsewhere. So, yes, we do very much see this as a growing partnership albeit that for reasons of lack of economic development or a rather short history of academic and educational development some of the developing countries may come to us initially from a less advanced base. That is changing rapidly, particularly where they focus on specific problems in the field of natural resources and also medicine. The development of some centres of excellence in the developing countries themselves, either on an individual country basis or a regional basis, is a point they themselves are keen on, and it has received some support over the years from the ODA and elsewhere. There are regional institutions for manpower development and regional research centres. It is very much a partnership, and the fact it is regarded as a partnership effort is a plus point in the psychological perception of aid and development and cultural relationships in the broadest sense. Turning briefly to the more specific point which has been addressed, I think we are talking about how we increased the impact of the resources already put into projects. I think the key lies in the catchphrase which is gaining a considerable following "follow-up". We bring people to this country for training or we provide training or equipment overseas, and we must not regard this as a one-off injection. To develop that contact and build up the relationship we must regard these injections of experts and the conveyance of technology and services as part of an on-going process. The Council has recently equipped many of its offices with computerised database systems which enable us to keep in better contact with the people who have been assigned aid or training in this country or benefits of one sort or another in order to target—this may be an imprecise tool but it has to be attempted—possible future leaders of the countries concerned. We are talking of people like Lord Butterworth's university contacts who will themselves rise to the top. Even for students coming to this country we have developed a thing called the professional access scheme, which means that whilst they are in Britain engaged in academic studies we put them in contact with industrial firms in the area relevant to their areas of study. One of the key fields is the ability to have more continuous access to textbooks and information from this country. Often, lack of foreign exchange, difficulties with the postal service, and non-availability of major reference collections in university libraries deprive study fellows and scholars of the ability to continue

to develop the skills they have acquired through our funding, so some mechanism for supporting them after the completion of their studies would be useful in terms of further developing their skills and making their training more effective and increasing their orientation towards Britain.

Chairman

164. Are you implying you could use more money to do that?

(*Dr Howell*) In many ways we are learning that quite a number of our competitors spend a lot more of their technical co-operation budgets on follow-up in proportion to their investment in training than we do.

165. So, you would like to see more funds available to do that?

(*Dr Howell*) Yes, I would indeed.

(*Mr Francis*) The remarks I was going to make are somewhat summary remarks. I think it comes back to the point that the Council seeks to provide a total service. We are comprehensive in what we offer, comprehensive not only in the range of offices we have round the world but also in the particular developing countries in ensuring we provide continuity. We are a friend in bad times as well as good. Earlier this year President Kaunda specifically thanked the British Council for continuing its work unaffected by considerations of the country's financial problems, because, as you are well aware, Zambia has fallen foul of the IMF and World Bank criteria. The continued interest of the Council is appreciated by host governments.

166. Do you find that in general the work of the British Council and the ODA is greatly appreciated? Does that appreciation far outweigh any criticism that we are not being co-operative in accepting their recommendations?

(*Mr Francis*) That is my view. My view is that by and large demand far exceeds supply, and sometimes appetite exceeds the ability to digest. We have to be careful in evaluating that which can be digested by a particular economy or particular country.

167. That is not quite the question. The question is: Do the countries which we help appreciate what we do, or are they critical that we do not do more? You say demand exceeds supply.

(*Mr Francis*) Far exceeds it. They deeply appreciate what we do. On the whole, they would like us to do more in almost every case, and notably those developing countries which do have some funds available are not averse to entering into joint funding of projects. That is quite important, because if a country contributes to the funding—it may be soft currency—nonetheless it greatly increases the commitment on their side.

168. In your view, is the scale of the United Kingdom's effort adequately comparable with what other countries do in this sort of field?

(*Mr Francis*) I think there are opportunities for the taking which could be pursued if there were additional funding.

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued]

[Chairman *Contd*]

169. But how does our funding compare with other countries? I am talking of America, Germany, France and the like.

(*Mr Francis*) I would have to answer globally. I do not know whether my colleagues can give an answer in the science and technology area.

(*Mr Thompson*) In all those countries I have direct experience of one sees other nations in greater numbers than British specialists, and one would have to conclude that they are putting more money into it.

170. In the science and technology field?

(*Mr Thompson*) Yes. The country where this has been most conspicuous in the last five years has been China. We have put enormous sums of money into China, but they still do not compare with the efforts of most of our competitors.

(*Mr Francis*) The other point to make in relation to your question about appreciation of the work of the British Council is this. Quite frequently I hear it said that what we do is appreciated, that we deliver the hand of aid within the glove of cultural understanding and we do more than just administer an aid programme according to a particular set of criteria. And in our presence on the ground we have the ability to soften that approach and present a certain amount of arts and culture and develop cultural interaction between our peoples, and that is appreciated.

171. To return to Lord Shackleton's question, perhaps you could provide some written evidence, if you cannot do it now, and give us a breakdown of total British Council expenditure as between aid activities of the kind we have been talking about—general aid, as well as science and technology, and cultural activities?

(*Mr Francis*) We will give you a note.

172. Could you break it down into science and technology, other aid and general cultural activities? That would be extremely useful. What about recruitment, which we have not asked about so far? As far as your own staff are concerned, have you got the people you need to do the work?

(*Mr Francis*) Yes. At the highest grades of specialisms retention is a problem, and there is also a problem in getting the right grade of staff at the kind of rates we can offer, since we are tied to Civil Service pay and conditions. This can cause particular problems in central London, for example. To that end we are planning to move some 500 of our staff out of central London at the end of 1991, not least because we want to move not only to a more economic area and thereby incidentally be able to charge the lower overheads to work in the less costly area, but also because of the slightly better labour market, away from the crowded south east, and we are mindful of what the demographic problems will be in the 1990s and so we are hoping to anticipate some of the problems in the lower grades.

Lord Taylor of Blackburn

173. May I ask where you are going?

(*Mr Francis*) What we have said is that at the moment our first choice would be Manchester, but other options are also being considered.

174. The quality of life up there is far better than it is down here.

(*Mr Francis*) Can I quote you?

175. Yes, you can!

(*Mr Francis*) However, we are doing a "Toyota". We have announced what our first choice is according to the criteria we perceive at the moment, but the auction is open to other cities, notably in the north but also Glasgow and Cardiff are still very much in the reckoning.

Chairman

176. One final rather controversial question. I have been very impressed by the close co-operation you have with the ODA and you are very much intermeshed with all this, and you went through the various stages of a project and you do one bit and they do another. Would you see advantages in combining it all in one organisation with a cultural end, a scientific and technical end and other types of aid all under the Foreign Office? Or do you see great advantages in keeping them separate as they are now with you doing more implementing on the ground and providing the local expertise and them producing the funds and other things?

(*Mr Francis*) I think it is a complex issue and one which incidentally we shall be discussing informally with our colleagues in the ODA quite shortly, as to whether there are other ways in which this thing could be put together. If I may offer my opinion it would be something like this: that there are two relationships which the Council has to have, one with the diplomatic service and heads of mission and so on, the other is with the ODA. I think those relationships could benefit from being of a slightly different order. Thus it is complex at the moment, that we should have the ODA as one of our sponsoring departments whilst at the same time being a client. In a way it would be easier if the sponsoring department were clearly the FCO with a single grant-in-aid derived from the diplomatic vote, and our relationship with the ODA more clearly thought of as that of agent and client. That is a personal view but having said that I think it is a complicated issue. All I can do is assure the Committee it is one which is in our minds and we will within the next month be having the next set of talks with the ODA to see whether we can clarify the relationship.

177. As one who is coming very new to this it does appear it is an effective co-operation, but it might benefit from getting more structure than it has now because I imagine it has grown up through the years to where it is now in a rather *ad hoc* way rather than a closely planned way?

(*Mr Vale*) Yes, that is so. Because of the value for money imperative, and the need to specify services when one organization is working for another, the

22 March 1989]

Mr RICHARD FRANCIS, Mr BRIAN VALE, Dr GARETH HOWELL,
Mr HOWARD THOMPSON and Dr NEIL KEMP

[Continued

[Chairman *Contd*]

relationship is certainly becoming clearer here in the UK. However, I and my colleagues here are overseas officers, which means that what really concerns us are not so much the administrative or financial arrangements in the UK (although obviously they must be of suitable nature), but the effectiveness of the work overseas. My view is that this effectiveness has not been compromised or reduced because there are different funding agencies in the UK. One of the unique features of the British way of doing things overseas is that we do not nationally distinguish between the various areas of intellectual reaction and set up a special agency or a special bureaucracy to work in each. Almost every other country does this; the Americans have separate agencies for aid, information and cultural relations. The same is true of the French; and the Germans have at least a dozen. Britain has only one, and that is the British Council. This means that the management and administrative costs are much lower for Britain than for other countries, from the view point of the overseas client who seeks access to British resources, the system is also less perplexing because, whether their needs are defined as aid, English teaching, information,

books, science or culture, there is only one place they need go to—and that is the British Council. It is this co-ordinating role in the field which I think is the strength of the Council and of the British position.

178. We would like to thank you most warmly. I, and I am sure my colleagues, have learned an enormous amount from the frank and efficient way you have answered our questions. We are grateful to you for spending the time, particularly Dr Kemp for coming all this way mainly on our behalf, and we hope the visit is worthwhile. Thank you very much indeed and maybe we shall want to come back to you for more information at a later stage in our enquiry.

(*Mr Francis*) If you going abroad, you might wish to have a country brief from the Council.

179. That would be extremely helpful. Mr Thompson mentioned a video, could you leave it behind and perhaps we can make arrangements for the Committee to see it?

(*Mr Thompson*) I think particularly Lord Shackleton will find it interesting.

Chairman] Thank you very much indeed.

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SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY
(SUB-COMMITTEE I)

Wednesday 12 April 1989

THE COMMONWEALTH SCIENCE COUNCIL

Dr G Thyagarajan, Dr S Malomo, Mrs M Y Smith and Miss J Strachan

*Ordered to be printed pursuant to the Order of The House of Lords of
29 November 1988*

LONDON

HER MAJESTY'S STATIONERY OFFICE

£3.30 net

WEDNESDAY 12 APRIL 1989

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Caldecote, V. (Chairman)	Thurlow, L.
Ilchester, E.	Walston, L.
Perry of Walton, L.	White, B.
Shackleton, L.	

Memorandum by the Commonwealth Science Council

The experiences and approach of the Commonwealth Science Council (CSC), in regard to scientific and technical aid to developing countries are outlined in the following paragraphs, in response to the points raised in the letter dated 27 January 1989 to CSC from the Clerk to the House of Lords Select Committee:

1. CSC covers a spectrum of science and technology (S&T) of very great diversity, and involves 34 countries whose science culture ranges from the very strongly rooted to a position of extreme weakness.
2. CSC is a very remarkable association of countries, both developed and developing, all of whom are trying to take advantage of the very rapid advances in S&T. CSC has a particular strength in that the member countries have many common features: besides the language, a fairly common legal and institutional framework, and traditional links with UK institutions and scientists. The CSC members themselves are senior representatives of S&T in their countries, such as the Director-General of the largest S&T agency, Chairman of the National Council for S&T, Science Adviser to the Prime Minister, Head of a major Government Science Department, Vice-Chancellor of a University and so on.
3. CSC's experience is that at least half the CSC member countries are states with small populations, having major problems in socio-economic areas, and for these vulnerable states S&T could potentially provide great help towards finding solutions. The participation of these small nations in international S&T collaboration is extremely handicapped. Nevertheless there is scope for progress: for example, CSC is helping the small nations to become aware of their own resources and development opportunities through assembling S&T profiles/inventories (eg St Lucia, Seychelles, The Gambia). A major programme is also being launched for Caribbean nations in relation to their oceanographic resource which (for these nations) represents a strategic area which is at present unexploited.
4. An important way in which such countries can be assisted to take useful advantage of scientific and technical aid is through priority attention to institutional capability building and human resource management. UK aid agencies may wish to review their association with national scientific institutions, and develop more innovative approaches in this direction.
5. There is often a perceived incompatibility between the intentions of the aid agencies to develop the scientific and human resource base while not wishing to encourage talent to emigrate permanently to other countries where opportunities may be vastly greater. This is linked to the modality of aid, scientific co-operation and training, as these matters are currently being implemented, ie it would be more beneficial if scientists could be trained in their own countries and if local facilities for this could be improved through aid/collaboration. This approach would also help to develop self-sustaining scientific institutions and to manage human and S&T resources. Examples can be cited.
6. The objectives of scientific aid/collaboration should be assembled into an integrated programme for development rather than as *ad hoc* responses; they should be specifically related in each country to the economic priorities and should be dovetailed into the overall national process of planning and implementation, paying concurrent attention to the environmental aspects. This may provide a strategic approach to the utilisation of human and S&T resources, from the viewpoint both of the donor and the recipient countries.
7. CSC has some experience in building up the indigenous S&T management capability, so as to match economic, social and political priorities with scientific ones, while taking into account environmental aspects. For example, CSC has set up a Commonwealth-wide programme in developing skills for the strategic integration of S&T and environmental issues into national developmental planning (COMMANSAT—Commonwealth project on the management of S&T). *Inter alia*, this involves identifying S&T resources and priorities, developing skills in the assessment/evaluation of R&D, and identifying mechanisms for the commercialisation of S&T, all within a flexible organisational pattern of S&T, conducive to better management and administration. Many aid programmes do not include attention towards developing these management skills and CSC's experience suggests that a different approach could help better utilisation

12 April 1989]

[Continued

of aid. The UK Overseas Development Administration, Natural Resources & Environment Division, who provide the CSC member for the UK, are encouraging efforts in this important direction. CSC's own approach is based on the in-house expertise of CSC members themselves in the management of S&T, by virtue of their positions in their countries and their long experience. The advisory services on specific management tasks offered by this group is low cost, while at the same time being highly credible to and well-received by aid agencies, who need to relate their priorities to those of the recipient countries.

8. Another area calling for increased attention is the development of suitable national mechanisms for S&T collaboration and for better utilising and multiplying the aid given. From the viewpoint of the aid agencies, more ways should be found of publicising, facilitating understanding of, and availing potential recipient countries of the bilateral and multilateral aid offered. An approach worth pursuing would be building up learned societies around individual well-known scientists so as to create improved consciousness for effective management of S&T. For example, CSC has started a new programme (ARAST—Awareness of rapid advances in S&T), which draws the attention of young scientists and science managers to key advances in S&T, with the help of Fellows of The Royal Society, The Royal Society of Chemistry, and other reputed professional bodies.

9. New trends and patterns of collaboration in S&T, and new mechanisms of S&T management in developed countries are perceptible. The trend in S&T is towards partnership rather than aid relationships, forms of multilateral partnership in S&T being in general more beneficial than purely bilateral arrangements. One of the strengths of CSC is that it offers channels for establishing multilateral partnerships in S&T in a secure and concrete framework. The forms of partnership to be developed entail South-South relationships as well as the more familiar North-South ones. An example mentioned earlier is the CSC's CORE project, which will involve a partnership between the Indian National Oceanographic Research Institute and scientists and scientific institutions from Caribbean countries.

G Thyagarajan
Secretary, Commonwealth Science Council
3 March 1989

Examination of witnesses

Dr G THYAGARAJAN, Secretary, Dr S MALOMO, Chief Project Officer, Mrs M Y SMITH, Project Officer and Miss J STRACHAN, Executive Officer for Information, Commonwealth Science Council, called in and examined.

Chairman

180. Dr Thyagarajan, we would very much like to welcome you and your colleagues today. Thank you for coming along. We are grateful for the paper you have given us. Would you like to make an introductory statement, on your role and how you see it fitting in with the ODA and other organisations working in this field?

(Dr Thyagarajan) At the very outset I would like to express our profound gratitude to the Committee for asking us to come here and give evidence. The Commonwealth Science Council is a small inter-governmental scientific body located in the Commonwealth Secretariat. It is, in a sense, an autonomous inter-governmental scientific body. It receives funding directly from member governments according to a predetermined formula. At present there are 34 members in the Council. Not all the members of the Commonwealth are yet members of the Council; in the Commonwealth there are 48 countries. The remaining 14 are not yet members not because they do not wish to be but they are too small, with practically little scientific infrastructure to interact. We have 34 full members. Not being a member is no bar to the Commonwealth Science Council associating them or assisting them.

The scientific programme of the Council is based

on the report of an expert group chaired by Sir John Kendrew, Nobel prize winner. It has been in operation for about four or five years now. The activities are under three broad areas: natural resources; technological aid and science management and organisation. Under these three broad areas there are eight programmes: energy resources; bio-diversity; geology and minerals; agriculture; environmental sciences; industrial support science; management and organisation and a new programme called ARAST or "Awareness of Rapid Advances in Science and Technology". We have a small professionally staffed secretariat in London of about 20 people but our activities are in the field in the member countries. The basic approach is to pool scientific resources available in the Commonwealth member countries and bring them into action to benefit the countries which are in need of scientific and technological help. We are very fortunate in that the Council represents a very wide S&T spectrum: Britain, Australia, Canada and New Zealand; the developing countries with large S&T infrastructure, for example, Malaysia, India, Nigeria, Zambia; and a large number of small countries, new island states, which are desperately in need of development. We operate as far as possible on a regional basis to keep expenditure under control and it takes the form of

12 April 1989]

Dr G THYAGARAJAN, Dr S MALOMO,
Mrs M Y SMITH and Miss J STRACHAN

[Continued]

[Chairman Contd]

research and development co-operation, information dissemination, a good deal of training activities, advice and consultancy. We have been able to produce some good successes in the programmes. There are, of course, understandable difficulties when we deal with the geographically widely located countries but still we have been able to generate a good momentum in these countries. I believe our activities are appreciated and benefited because the Council members are people who occupy very high places in the countries such as heads of S&T agencies or permanent secretaries who deal with science or industry, Chairmen of the National Research Council or Vice Chancellors of Universities. We have thus a good cross section opportunity to interact with people from different walks of life in those countries, people who influence the S&T development in these countries.

181. Do you see your role as mainly helping the countries who most need aid to see how best they can make use of scientific and technological aid?

(Dr Thyagarajan) Exactly.

182. And introducing them to the right sources of funds, projects and the like?

(Dr Thyagarajan) Exactly; it is now well appreciated by every country that science development is going to be extremely important for social development. Fifteen of our member countries are very small and many are economically very vulnerable. They have the resources but they do not have adequate multi-disciplinary expertise available to relate those resources to development opportunities, to understand the problems and assess, solutions. We do a kind of science broking in that situation. In a number of areas we are helping countries to understand what development opportunities are available like science and technology. Some of these countries do not even have people who can relate the resources with the development and then bring in science and technology to the needs of those countries. In a number of cases there are also research intensive problems, such as problems relating to agriculture.

Lord Thurlow

183. You mentioned you have chalked up some particular successes, can you give us some examples of the success of your work?

(Dr Thyagarajan) Pardon?

184. You mentioned there have been a number of considerable successes in your work, could you give us some examples?

(Dr Thyagarajan) Yes; the successes in terms of appreciations received from the member country from the highest level, like the Prime Ministers and Heads of Government, have seen the useful role played by the Commonwealth Science Council's activities in terms of human resource development, institution building and solving some of the critical problems faced by the country.

We have 24 projects in operation at any given time, dealing with subjects like biological diversity, environmental planning, coastal zone management,

agroforestry, crop protection for small scale farmers and training in the area of micro-electronics. The CSC's programmes are reviewed every two years when the full Council meets. At that time the entire programme is reviewed in thorough detail, through Working Groups. The last meeting was held in November 1988 in Lagos, Nigeria, the host country. The verdict was that many of the CSC's programmes have been of great help to the member countries. The countries which provide assistance (like Britain, Australia and other scientifically advanced countries) and the countries who receive help, they both have a say in project selection and operation, whether it concerns disaster management or management of toxic wastes or training in micro-electronics. One of our programmes which has attracted the interest and participation of leading international science bodies is ARAST. Commonwealth developing countries keep abreast of advances in areas like biotechnology, micro-electronics, information technology, materials science and technology. It is important that people in those countries who are science planners or who research or teach science should be aware of what is happening in those areas in other countries. We arrange meetings where world class scientists interact with young people from those countries and there is a good deal of exchange of views. The increasing interest in CSC's activities by other international scientific bodies can also be regarded as an index of success.

Lord Taylor of Blackburn

185. You say you have 24 projects going on at one time, does that mean you stick to 24?

(Dr Thyagarajan) Twenty-four is a comfortable number for us to handle. Each project runs for about three to five years, not more. They are not on a permanent basis. They keep changing. Every two years the biennial meeting reviews the programme so we give up certain projects and take on new ones.

186. The maximum is 24?

(Dr Thyagarajan) The maximum is 24, yes, on the basis of three projects for each programme; we have eight programmes.

Lord Watson

187. Can I ask where the initiative comes from for the projects? You say in your note that: "... CSC is helping the small nations to become aware of their own resources and development opportunities through assembling S&T profiles/inventories (eg St Lucia, Seychelles, The Gambia)." You are doing the oceanographic inquiry for the Caribbean nations. Is that an initiative which originally comes from you? Do you suggest it is useful or is it one of those small items given to you and you say: "We would like to do this" or does ODA suggest it to you?

(Dr Thyagarajan) Initiatives come primarily from two sources: the Council Secretariat's planning and forecasting, and from the member countries. From our own data base of each country and our experience of operating previous projects we have

12 April 1989]

Dr G THYAGARAJAN, Dr S MALOMO,
Mrs M Y SMITH and Miss J STRACHAN

[Continued]

[Lord Watson Contd]

an idea of what the countries in a region are in need of and then we try to prepare a note or aide memoire and send it to the countries and ask: "If we set up a project in that line would it interest you?" The S&T profile is an idea project from the Science Council itself. For example we observed that several small countries which export agricultural products could also have industrial activities related to those resources. There was no downstream processing to value added products. We felt it would be a useful exercise to assess the resources of such small states and integrate them into a science profile and identify industrial possibilities. If I may give an example, several Caribbean small countries export bananas to other countries, Britain included. Banana is a commodity which really brings substantial foreign exchange but it might surprise you to know that in the small states 30/40,000 tonnes of bananas perish every year due to over production, fewer buyers or delayed supply or the fact there is no processing so setting up how to convert bananas into jam or other consumer products would be a logical development. A country exports bananas but it imports canned banana products, to cater to tourists. These could easily be made within the country. In essence, the S&T profile is an exercise in formulating proposals for industrial and human resource development appropriate to the available resources.

Chairman

188. You help them to fund these projects?

(Dr Thyagarajan) Actually in the Commonwealth countries there is a good tradition of assistance, for good projects, money is not difficult to find. If banana processing industries are to be set up we will approach Australia, Britain or India to provide the assistance to the Caribbean countries bilaterally or multilaterally. If an industrial feasibility is to be established we advise them to approach the Commonwealth Industrial Development Unit. The IDU facilitates transfer of technology as well.

Lord Walston

189. So the initiative normally will come from you and you will suggest it to the country or group of countries concerned and see how they react and then discuss it with other expert organisations?

(Dr Thyagarajan) Yes, my Lord.

Chairman

190. Do you want to say something, Mrs Smith?

(Mrs Smith) Thank you. I think that what Dr Thyagarajan has said covers most cases but obviously there are some particular thrusts within each programme area which were underlined in the Kendrew report about four years ago and they have been developed as generic themes in CSC projects. Now, those generic themes, such as industrial support, micro-electronics, metrology and so on, attract a number of participants who identify their requirements individually and then translate them together into specific projects. On that basis we come back and have a project document, say, and then we look

at the collaborative aspect—how we manage that project, how long that project takes. So it is a two-way process for identification of R&D projects.

191. You would help to monitor the progress of the project?

(Mrs Smith) We are managing the project jointly with them. We are not simply providing, scientific and technological aid and financial resources. We are also collaborating with them to manage the projects that we set up with them. The CSC is in a better position to do that than other international agencies, because of the standing of our members.

192. Could we perhaps ask you how you see the scientific and technological needs of developing countries changing in the years ahead?

(Dr Thyagarajan) I think the S&T needs of the developing countries are going to be very much in the direction of applying S&T for economic development. That is the trend we see. Countries want to be increasingly self-reliant and there will be an increasing demand for strengthening the endogenous capacity of the developing countries to be able to make independent choices and judgments. The broad areas of S&T for which there will likely be demand are agriculture, natural resources, the environment (including management of the environment programmes and problems) energy—a very crucial area (there are many countries which are one hundred percent dependent on imported energy feedstock), population, and applying S&T for defence, for national security.

Lord Thurlow

193. From your perspective, how well do you consider that the United Kingdom's scientific and technical aid and the efforts of various British agencies is adapted to the needs of the recipients? How might it be improved?

(Dr Thyagarajan) It is not fair on the part of the CSC to comment on how well British scientific aid is adapted to the needs of countries, but from our own experiences and observations, our suggestion would be to do everything possible to keep the trained talent in the country itself. There is a great deal of migration of qualified, educated and trained people from these countries. In the small developing countries a disproportionate number of such people stay outside the countries than are available within the countries to solve their own problems. So if the aid programmes can strengthen the local scientific institutions, that can not only attract the educated and trained people but also hold them, this will be a great help to the countries. There are very disturbing trends in the migration of trained people from developing countries.

194. What is the trend there? Is it getting worse or better?

(Dr Thyagarajan) It is getting worse because the national institutions are unable to equip themselves with the scientific equipment and tools which will attract the nationals working outside. There is a need to develop mechanisms which will reverse this trend

12 April 1989]

Dr G THYAGARAJAN, Dr S MALOMO,
Mrs M Y SMITH and Miss J STRACHAN

[Continued

[Lord Thurlow *Contd*]

of migration. It is not a problem, for example, in a country like India. I am from India, working here temporarily. At one time we used to talk of brain-drain: now it is a brain-bank. But in many other countries it is a serious problem.

Chairman

195. Are you thinking mainly of academic institutions when you refer to local needs?

(Dr Thyagarajan) Not only academic, also technical institutions and industries. There is an increase in the number of industries which go sick because people are just not available. Consultants make recommendations on how to revive them, but there are not people to implement the recommendations. I think something has to be done about it.

Lord Shackleton

196. We have had evidence from the Ordnance Survey, which took over the Directorate of Overseas Survey, and they record a great decline in the field of technical aid.¹ Their cartographic staff has dropped from nearly 300 in 1964 to 24 now. The Directorate of Overseas Survey—which I did not want to see go into the Ordnance Survey, but it did—has practically disappeared. The implication is that there is no call for the classic type of topographical survey which for years British surveyors did. It was very much an activity for young men going into the Commonwealth—I did some topographical survey in my youth in Borneo. That side seems to have disappeared. Does that mean that there is no need? Is that because the resources are already contained in the countries, or do other people do it, or is it done commercially?

(Dr Malomo) My Lord, most of the statements you made are very correct. The CSC recognises the problem of remote sensing and moving from other areas to using remote sensing satellite data. With reference to the systems your Lordship talks about this problem is still there and is very acute in countries that I know of, countries like Tanzania, where the last topographical maps were done before independence. The last aerial photography for Nigeria was carried out in 1963, three years after independence, and nothing has been done since then. The needs are there. It might be possible that some countries do not have the financial resources to improve the studies but in some others there is lack of technical capability, while in some it is both.

Chairman

197. Could you speak a little more slowly?

(Dr Malomo) The needs are there. What is also very important is the continuous inter-action that goes beyond straightforward school curricula. We are talking of information systems. People with these capabilities in these countries are not there to help and benefit. This is not a one off thing, it is a continuous process. It is a continuous inter-action, continuous training not only to limit migration, which

has been talked about, but also to improve the quality of life of the country. The GIS came into being about 20 years ago and most of the scientists that I have come across today in developed countries are in contact with new approaches to doing things with this system. In most countries they are still far from there and also, very important for GIS is the computer technology which is not available in these countries. Most of those countries are talking about using micro-computers.

198. Are they very expensive: survey equipment computers and so on?

(Dr Malomo) I am not so sure, I think, for instance, the geographic information systems have come down in price in the last ten years. The thing that brought them down was the computer revolution and the needs of some of the countries that are interested in them, I say countries like Tuvalu, St Lucia and other countries like Malaysia.

199. Are demands made which just are not fulfilled? Are there people not wanting some up-to-date survey information? When it comes to the application of that digitising and the use of remote sensing information, whether from aircraft or satellites, how far is that need being met which again is in the ordnance survey field?

(Dr Malomo) Remote sensing technology and many of these new technologies which are used by the ordnance surveys today are still fairly unknown in some of these countries. I think the initial point I would say is to have training and make them aware of these possibilities and then go on to ask other people, other agencies, to support them in terms of hardware. I think software is where CSC, with the resources' level it has, been able to help and has been aggressive.

200. How far does the British scientific and technological aid, whether ODA or British Council, compare with that of other aid agencies and particularly in relation to the French effort? Obviously we are interested to see how well our scientific and technological ability compares with other countries.

(Mrs Smith) Not specifically to the area of geographic information although I could think immediately of another specialist area. I could relate your point immediately to a case in Mauritius. There is an on-going, large programme related to topography sponsored by the French through the University of Marseilles. A few months ago there was a need for the identification of training and equipment attached to that particular programme and the Mauritius government requested assistance from the British High Commission. That is one particular case where they could combine the French assistance and the British assistance. Regarding approaches to British aid, I would say, for instance, that one could observe in Italy or the United States or Canada aid *per se* channelled more and more through professional scientific associations or learned societies rather than through traditional aid agencies such as ODA. I would give the example of the American Association for the Advancement of Science which has an intensive programme of US help for Africa.

¹ For topography, cartography and geographic information systems.

12 April 1989]

Dr G THYAGARAJAN, Dr S MALOMO,
Mrs M Y SMITH and Miss J STRACHAN

[Continued

[Chairman *Contd*]

Italian foreign aid is directed in part through the Centre for Theoretical Physics and the Third World Academy of Science in Trieste. That is a different way of channelling aid for S&T.

201. Is that more effective than our way?

(Mrs Smith) It is much more attractive because it encourages a collaborative approach. It has all the advantages that have been mentioned until now such as leading to self-sustainability and training people in their own countries. Also it has credibility among professional scientific associations. You deal with the same people but they are looking at a project from different perspectives. It is a very attractive formula. Also the French in Africa have provided help to the African Regional Centre for Technology, for instance; they have given quite extensive help not through aid but through specific French organisations providing pilot demonstrations and projects and so on. ARCT is based in Senegal, in Dakar.

Lord Taylor of Blackburn

202. In the provision of STA what balance should be struck between developing local capabilities and achieving operational tasks?

(Dr Thyagarajan) We were discussing this a little while ago. Mrs Smith has been looking at this problem.

203. I see.

(Mrs Smith) We had been discussing this before we came here. It is very difficult to say what balance, I think, because if we are defining developing local capability, self-training, training in a broader sense for science and technology and training in the countries rather than training in, say, the United Kingdom, that is one particular way we can look at it. If we relate that to achieving operational tasks that means the usual approach—using consultants or whatever it takes to achieve the particular task. Consultants in general are from developed countries. A combination of the two is needed for success: training in the country and training in general terms. You can identify training related to the specific task. I could give you a particular example within my area which is what is called, in general terms, the management of science and technology. Now, there are a lot of courses on science policy, science and technology management and so on in this country—some are excellent—in SPRU and Manchester and so on. If you talk about senior people from developing countries, like the Directors-General of major institutions, science advisers and so on, this type of training is not sufficiently flexible to meet their needs. There is a different type of training which is requested, a civil service college type of training or some other type of training involving, for example, exchange between a chief scientist here and the science adviser in a developing country. They can discuss matters, exchange views from equal positions and in that sense you achieve some training. In Malaysia, for instance, we were requested to help them to set up a new R&D strategy to allocate a budget, which is an unusual situation by comparison with other countries. The Prime Minister decided

there was a need to intensify research in priority areas and they have put aside about £120 million for a five year plan. However they wanted advice on how to spend the money, priorities and so on. That particular task had to be done, for Treasury and budgetary purposes, to meet a deadline; so it was an operational task. Now, we have dealt with the task as much as we can from people within but we combined, within those two years, bringing people here and training them so this means training on the task. So, the balance between developing local capabilities through training and assisting with operational tasks could be achieved better if there was a greater development of local capabilities, training being done in the countries themselves, because then it is much more tailored to the context and to the task.

204. Does this mean retraining as well?

(Mrs Smith) Yes.

205. Are you bringing that in as well?

(Mrs Smith) Training in the broader sense. It is not postgraduate training but more to do with practical experience.

(Dr Malomo) I think what we are talking about is from earlier on. I think what she has in mind goes beyond straightforward curricula. Retraining all the time. It is *not* just a one off thing. It is because no sooner are they trained than some find employment elsewhere. Even those who stay behind for example Commonwealth scientists they are trained in Britain. They have contact with new methods, new approaches, new ways of doing things but they also need this kind of training to update their knowledge. It is a continuous process. We have to find ways of making it sustainable. The point she tried to bring up was that sustaining can be carried out if the training is done locally so that the whole development and the whole concept is improved and becomes much more holistic.

206. You would advocate the greatest emphasis on developing local facilities and bringing people here or to other countries to help that developing of local facilities?

(Mrs Smith) You achieve more than just training, you achieve capability. One such Commonwealth Science Council example is CIMET, the Commonwealth-India Metrology Centre which has just been launched.

(Dr Thyagarajan) This is a strategy we now use to find a way for continuing programmes of enduring relevance after the CSC has run them for some time. In the case of metrology, required by countries on a continuing basis, we encouraged one of the countries which played a key role in producing the particular programme, to provide a home for the programme on behalf of the CSC and take over the training and R&D support. India, New Zealand, Australia and even China, outside the Commonwealth, had helped to advance this programme, the National Physical Laboratory in New Delhi had played a key role. We invited them to accept the programme and willingly they responded. It is called Commonwealth-India Metrology Centre or CIMNET, a facility available to all Commonwealth countries, for group training,

12 April 1989]

Dr G THYAGARAJAN, Dr S MALOMO,
Mrs M Y SMITH and Miss J STRACHAN

[Continued

[Lord Taylor of Blackburn *Contd*]

R&D attachments and related services. We may be able to extend this concept, or this mechanism, to other subjects and other countries as well.

Chairman

207. Could we go back to a point I think you made a bit earlier, that other countries who are working on this feel we should put more emphasis than we do on contacts between professional institutions in the donor country and in the recipient country? Do I understand you aright?

(*Mrs Smith*) Yes, that is correct.

208. Are you implying that the United Kingdom aid programme should be more directed in that way, that we should try to encourage more contacts between local professional institutions and UK professional institutions?

(*Mrs Smith*) I think there are various channels through which already in the last few years this is oriented. I do not know if the British Association for the Advancement of Science could perform the same role as AAAS in the States, but what I am saying is that ODA, as I understand it at the moment, are currently entering a new strategy and management of their S&T aid; they are trying to arrange for projects on science and technology to be managed totally outside ODA by research institutions or probably professional scientific associations. There are various research councils, for instance, like the Agricultural and Food Research Council, which could be requested to manage some of these scientific and collaborative projects. These would not be perceived, if I may say so, as aid. If the same aid were channelled through our universities, our research councils and professional scientific associations, there could be a change and some benefit.

Lord Walston

209. The line that I understand you are advocating would work well in what one might call the more sophisticated of the developing countries where there is already a strong science base and a university base, but if you are dealing with smaller countries where there is no such base that would be an impossible approach, would it not, and therefore something different would be necessary.

(*Dr Thyagarajan*) This is true. I think there are many countries where there is no S&T infrastructure to take advantage of such an interaction, but I think the fact that there are no science roots in those countries is also to be reviewed as a major problem—how to introduce the science culture, the science system, into those countries. We have not been able to find answers. In some regions though it is possible to bring the countries together to evolve a common approach.

Lord Butterworth

210. I have always understood that the ODA commission work, they do not undertake it themselves. It is always a third party, an agency, that carries out the work on behalf of the ODA and, of course, that agency must be one the performance of

which can be measured because public money is involved and therefore it is extremely important that it should be properly accountable. I am not quite sure what it is that you are suggesting. There are quite a number of projects which are carried out now by agencies like the Agricultural and Food Research Council. Could you give me an example? You began, I think, a few moments ago by referring to Mauritius. Who is actually carrying out this project you referred to in Mauritius? Who is the agency actually carrying out the work?

(*Mrs Smith*) Well, in relation to the British aid that we give rather than in relation to the agency in Mauritius itself, in Mauritius there is a university—only one university, a small one—and if, for instance, we get one research grant—To be specific, I am on the point of getting a research grant from ODA, NRED, on what is called environmental research management and Mauritius is one of the countries participating. Now, we are going to give the team in Mauritius University, which has been agreed by the University and agreed by their Minister of Economic Planning and so on, the resources, the money and also, which is again very beneficial, the potential to include in the team people from their own local capability rather than bringing consultants from outside unless they ask for this.

211. Who is managing this project?

(*Mrs Smith*) The Commonwealth Science Council will be the intermediary, but the University of Mauritius will provide the research team and the principal investigator, to manage their own project.

212. Who in the University of Mauritius is going to manage it?

(*Mrs Smith*) The head of one of the departments together with about six of their senior research fellows.

213. Which department is that?

(*Mrs Smith*) There is what is called a School of Tropical and Agricultural Resources. There are three divisions, three schools in that University—very small schools.

(*Dr Thyagarajan*) This programme is being directly overseen by the Vice-Chancellor of Mauritius University.

(*Mrs Smith*) A small university, a small community.

214. What is the academic discipline of the Vice-Chancellor of the University of Mauritius?

(*Mrs Smith*) He himself is a chemist. They are going to have in that particular team two engineers and a social scientist.

215. Is there an engineering department in the university?

(*Mrs Smith*) No, not yet. They are trying to develop a team for an engineering department. They do not have a mathematics department either, they do not have a number of departments.

Chairman

216. Are you helping them to do that?

(*Mrs Smith*) That would be a spin-off. If we are

12 April 1989]

Dr G THYAGARAJAN, Dr S MALOMO,
Mrs M Y SMITH and Miss J STRACHAN

[Continued]

[Chairman *Contd*]

developing a particular project over about two years, during that time one identifies a number of other weaknesses and there are various things we can do to help besides assisting in the specific project. There are spin-offs during the process.

(*Dr Thyagarajan*) This project, institutional systems for management of the environment, is a project which I think is going to be very, very significant. The ODA assistance will substantially advance the project and benefit the country. Mauritius is one of the countries participating in the project. Country tasks are also formulated in Africa and the Caribbean. There are good opportunities for exchange of experience.

Earl of Ilchester

217. You raise in your paper the particular difficulties of small countries in international collaboration in science and technology. As I understand it, in the CSC's role as scientific broker, you have pointed to the use of a particular technique, that is the use of profiles/inventories. I am not sure whether these are alternative words for the same thing or two entirely different things. You employ this technique in assisting these nations in understanding themselves. Can you elaborate a little, for instance, in the case of The Gambia, which is one of your examples? What was the purpose and value of profiles and inventories in helping them?

(*Dr Thyagarajan*) My Lord, the basic data inputs in a typical profile are the following: the country data in terms of area, population, the health of people, the literacy status, education and training institutions the availability of electricity (urban and rural), GNP, major imports and major exports, balance of payments, exchange rate and major foreign exchange earning sources. We get an idea of the economic picture of the country. Then we look at agriculture, the major crops, the cropping pattern, markets, and agricultural practices. (In Mauritius, for example, the island has large areas under sugar cane but there is now a glut in the sugar market and they would want to diversify.) Such as irrigation pattern, soil-water-crop management; facilities for rural credit/co-operatives; seed/pesticide/fertiliser distribution system; land ownership pattern; land under plant protection cover; consumption of fertilisers, consumption of pesticides etc. Then data on minerals and production energy in non-renewable sources and renewable sources and the current industrial activities; environmental and habitat factors; Government policies, plans and priorities. With all this background information we go on to look at areas where S&T inputs could hasten development. For example, animals are an easily available resource in several countries, but animal-byproducts are not efficiently used. The processing of leather and leather products for example is a profitable area. I can cite the experience of my own country where in the 1940's the country was exporting about 40 million dollars of raw hides but by setting up a Central Leather Research Institute in Madras and stimulating the processing concept the export of raw hides was reduced and the export of semi-processed

leather was encouraged. Then on to fully processed leather which increased the exports to 200 million dollars by 1970 and to 800 million dollars by 1980. Today the export of leather and leather-products from India is over 1 billion dollars. That is the kind of thing I am referring to. In many Caribbean countries, southern African countries, similar opportunities exist. There is a flourishing market now for leather products.

Chairman

218. This is part of your consultancy role?

(*Dr Thyagarajan*) Advisory role, yes.

Earl of Ilchester

219. This is rather more than a mere scientific matter?

(*Dr Thyagarajan*) Yes, it is relevant to applying science and technology for economic, social and industrial development. This S&T profile exercise is novel and it appears that other international agencies are also interested in the outcome of our efforts. We did profiles for the Seychelles, The Gambia, St Lucia, Brunei has asked us to do it. Brunei is a wealthy country who could have consultants; we are glad that Brunei has asked CSC to do this study.

220. What effort and time is involved in generating this?

(*Dr Thyagarajan*) For Seychelles, St Lucia and The Gambia, the field visit by our expert lasted up to two weeks. Analysing the data and production of the report took about 3 months. Brunei has hydrocarbon resources, it will require not one expert but a multi-disciplinary team. We expect the Brunei study will be very interesting but also difficult and very expensive.

Lord Walston

221. How do you avoid the dangers of duplication and treading on the toes of other people there? You mentioned St Lucia and bananas which is an area I know very well, having grown bananas there for many years. There have been a vast number of inquiries and a continuing investigation of the problems associated with it. Are you well placed to make use of all that previous information and to work with those people, the Windward Islands Banana Association and so on, in solving these problems?

(*Dr Thyagarajan*) We do take into account work done by other organisations before we formulate our course of action. In the case of bananas, the Windward Islands Research Institute is in the picture. We are going to have a consultation meeting this year with the experts from WINBAN, other Caribbean institutions and from Commonwealth countries who have studied the problem of storage and processing they will review available data and advise on the best possible way CSC could assist, to avoid the wastage of tens of thousands of bananas every year.

12 April 1989]

Dr G THYAGARAJAN, Dr S MALOMO,
Mrs M Y SMITH and Miss J STRACHAN

[Continued

Lord Shackleton

222. There is a reference in the evidence you gave us in paragraph 7 about training in the use of science and technology. Do you want to add anything on that subject?

(Mrs Smith) I would stress the importance of a complimentary intensive effort in increasing indigenous S&T management as referred to in paragraph 7 and this relates also to the points which I made earlier about this S&T profile. We are saying that we have observed that if there is an *ad hoc* type of response or development of S&T programmes rather than an integrated programme for development which includes also a strategic way of using or developing skills for management of the particular S&T resources, if that is not being done then money, effort and so on are wasted and the purpose is not achieved. There is a need for identifying development in an integrated way and relating it to S&T. What most of the aid agencies have only just begun to do is to find ways of helping countries to manage projects of real developmental value, meaning not only at the project level but also at the national level.

223. Teaching Governments as well?

(Mrs Smith) That is right.

224. Her Majesty's Government also?

(Mrs Smith) Yes; this programme area, science management and organisation, which has the acronym of COMMANSAT—Commonwealth Project on the Management of S&T and its Strategic Integration into National Development—has been developed in a very collaborative way between many S&T managers—British managers—starting with chief scientists, Office of Science and Technology Assessment, Department of Trade and Industry Evaluation Unit, the Natural Environment Policy Planning Unit and so on, rather than using SPRU and other organisations. A network and programme have been created between the people from here and equivalent people in various countries. What we have observed after about three or four years, we have been able to expose about 25 S&T managers from other countries, to issues such as R&D evaluation which we are talking about in the UK or assessment of R&D priorities and so on. These 25 are now able to provide very quick, professional and credible advice to requests from their own and foreign countries.

Chairman

225. For help in improving their management technique?

(Mrs Smith) For improving management of S&T through an integrated approach. I would give you one example which is not very successful; the World Bank, when they are giving loans for agricultural research in the last three years they included a component of that loan in relation to "putting one's house in order", as they call it, that means reviewing the agricultural research management and so on. For that they tend to tackle only the Ministry of Agriculture's organisation of S&T without bearing in mind

that that is only a component of the total S&T scene, which involves the Ministry of Industry and other ministries which have S&T. This can get them into real trouble. So an integrated approach is needed which involves management in addition to the hard science and technology aid.

226. Is this a service you make available? Do you run courses and conferences for people to improve their management ability?

(Mrs Smith) We have got various requests—we call them country tasks, specific operational tasks—and they are part of a collaborative project. We have available as a resource all these directors general and science advisers from various countries and we can set up advisory teams at very short notice. * *footnote by witness*: An advisory team was set up for Grenada in January 1989 to advise on formulation of an S&T budget. In Nigeria in April 1989 a team advised on the creation of a centre for the commercialisation of R&D.

227. On an *ad hoc* basis?

(Mrs Smith) That is what we would do on an *ad hoc* basis. But, for instance, one could do it much better—

(Dr Thyagarajan) One successful experience was the ComManSat programme in Malaysia. The Government was in need of a mechanism or advisory system for screening requests from different national agencies for research funding. Now in the national budget, when money has to be apportioned for S&T, this also involved strategies for intensification of research in priority areas. The Commonwealth Science Council was associated in the Malaysian exercise which led to what is now known as IRPA or Intensification of Research in Priority Areas. It was applied for research funding last year in the Malaysian Budget, but that accumulated experience is now available through ComManSat to other countries. The people who helped to develop that now constitute our advisory group, our resource group. When, say, Trinidad wants to know how to prioritise research in the agriculture area we request these experts to advise. So it is a question of developing an expert group on the basis of a felt need, then that particular group acting as a resource group for other countries.

Lord Shackleton

228. I understand that a memorandum has been prepared by the Malaysian science adviser. Has that officially gone to the Sub-Committee?

(Dr Thyagarajan) Yes, there was a fax.

Chairman] It has not yet been circulated.

Lord Shackleton

229. Do you want that to be part of your written evidence?

(Dr Thyagarajan) That is probably all right if you want to consider that.

230. You obviously attach a good deal of importance to it. I thought it was right it should be seen.

12 April 1989]

Dr G THYAGARAJAN, Dr S MALOMO,
Mrs M Y SMITH and Miss J STRACHAN

[Continued

[Lord Shackleton *Contd*]

This is on the proper management of science and technology.

(Mrs Smith) I know your Committee also attach a lot of importance to it.

231. You cannot cover everything. This is something you feel is within your capability?

(Mrs Smith) It could be in our capability if we were to have a bit more funding and a proper arrangement with the Commonwealth Science Council. Not very much money is needed for this kind of thing.

Lord Thurlow

232. What is the budget of the Council?

(Dr Thyagarajan) The Commonwealth Science Council budget comes from three sources. The primary source is the contribution by Member Countries on the basis of a formula which is roughly the same as contributions to the Commonwealth Secretariat here, Britain being a major contributor; Britain, Australia, Canada, New Zealand and India sharing about 82 per cent of total budget and the remaining 18 per cent coming from the other countries. That is about £600,000 annually. We get from the Commonwealth Fund for Technical Co-operation on a project to project basis (where there is a training and technical co-operation component), approximately £350,000; so that makes it almost £1 million. The third source is, of course, the money we raise from external agencies. For the programme in Southern Africa on agroforestry a major funding is from the Ford Foundation. There is UNESCO assistance in a number of cases. Many of our programmes in Africa and the Caribbean are assisted very substantially by the ODA. Then in the African energy programme there is support from the African Development Agency. We raise about £500,000 every year from outside. In all the resource would amount to £1.5 million annually. Member countries also provide support in kind, for example when hosting events.

Chairman

233. As I understand it, most of the areas in which you are involved would be described as multi-lateral aid. You have many countries collaborating with you. Do you have any views as to whether the multi-lateral projects in which you are involved or the bilateral ones are most effective from your experience?

(Dr Thyagarajan) We are involved more and more in multi-lateral ones; bilateral relationships for programmes usually arise as a consequence of our efforts. Bilateral programmes are easy to set up and operate, easy also to control, but then there are limitations. Since many of our projects relate to global issues—issues where more than one agency or country is interested—we find multi-lateral programmes are more helpful to the countries. Provided we can identify the right subject area and the right national institution, that is able to make a more visible impact. This is our experience.

(Mrs Smith) Something we have discussed quite

extensively is the advantage of multi-lateral S&T rather than bilateral S&T. One of the things that was mentioned before was bananas in St Lucia. Well, through individual bilateral aid you can very well confuse 15 scientists who are in one island. In fact, even in a large country like Nigeria, although bilateral aid, is much more directly accountable, controllable and so on, you can very well produce confusion, duplication and so on. So there are advantages in having multi-lateral S&T aid—but specifically S&T, not necessarily other types of aid.

234. One final question: do you feel that, if you had, say, double the funds available you could do a great deal more, or do you feel you are well funded for the kind of work you are aiming to do?

(Dr Thyagarajan) We could do a great deal more in terms of strengthening the capacity of local scientific institutions. At present our funds are not available for that particular purpose. For example, the grants from the Commonwealth Fund for Technical Co-operation or from many agencies are not available for equipment support. We find that, even if we stimulate good capability in a country, unless those people have the right tools and techniques in institutions where they are to practise it, it turns out to be a wasteful exercise. We would be able to generate a greater multiplier effect if we had more money.

235. Have you talked to the ODA about that?

(Dr Thyagarajan) We are going to be talking to the ODA about it. The point was made earlier about the two International Centres for Genetic Engineering and Biotechnology (ICGEB) which have been set up in Italy and in New Delhi. This is open for all developing countries. Here is an opportunity for substantial ODA involvement, for example, in the New Delhi centre if ODA could provide funds. This centre is going to be working in frontier areas of direct importance like agriculture biotechnology, health, vaccines and so on. It can benefit many countries with scientific, industrial and human resource development. ODA may wish to examine this. I therefore believe that assistance to institutions working in frontier areas is very important. Britain assisted the establishment of the Indian Institute of Technology in New Delhi. The Americans funded IIT in Kampur, Russia assisted IIT in Bombay, and Germany the IIT in Madras. These are visible proofs of meaningful co-operation. These institutions are first class and have helped train hundreds of technologists.

Lord Taylor of Blackburn

236. I think Dr Malomo has something more to say.

(Dr Malomo) Just to elaborate and look at development. Lord Walston made the point that some countries are without resources, whether people or natural resources. One of the areas within which we could benefit far more, from our point of view, would be developing this capability in these countries—very small countries—because of the large number of small countries we do not have the resources to give basic institution faculties, for instance,

*12 April 1989]*Dr G THYAGARAJAN, Dr S MALOMO,
Mrs M Y SMITH and Miss J STRACHAN*[Continued]**[Lord Taylor of Blackburn Contd]*

infrastructure equipment for these countries. That could be a very good starting point if it could be looked at.

237. Thank you.

(Dr Malomo) One of the points which we were talking about which was not mentioned is the question of the sustainability in aid donation. Progressively more and more aid agencies are realising that we cannot keep going on and on. There is a tendency towards dependence in some countries in terms of receiving aid. If you look at the sustainability as a very basic component of aid and S&T, we could encourage self-reliance. That is having what I have called—maybe not quite definitively—a sustainability index. How sustainable is an S&T programme when it has been given? It is very important that when it has been three, four, five years and aid is

withdrawn, somebody locally takes that over. I think that is a starting point.

238. I think that is where we started with the 24 projects at the beginning.

(Mrs Smith) There is an additional point related to that. ODA, and other agencies, have various criteria and ways of evaluating or appraising any project. The so-called “logical framework” used by most of the aid agencies has various indices for verification of achievement and so on. What we are saying is that if there were to be calculated some kind of measurement of sustainability, achieving self-sustainability through a project, it would be a very great improvement, both in ensuring that the aid is relevant and also in ensuring that it is achieving the purpose. At present there is no such criteria made explicit in the evaluation of S&T aid programmes.

Chairman] Thank you all very much for your evidence. We are grateful to you.

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MINUTES OF EVIDENCE
TAKEN BEFORE THE
**SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY**
(SUB-COMMITTEE I)

Wednesday 26 April 1989

COMMONWEALTH DEVELOPMENT CORPORATION

Mr J Eccles, Mr D Stephen and Mr D Pierson

*Ordered to be printed pursuant to the Order of The House of Lords of
29 November 1988*

LONDON
HER MAJESTY'S STATIONERY OFFICE
£3.80 net

WEDNESDAY 26 APRIL 1989

Present:

Adrian, L.	Shackleton, L.
Caldecote, V. (Chairman)	Thurlow, L.
Ilchester, E.	Walston, L.
Perry of Walton, L.	White, B.

Memorandum by the Commonwealth Development Corporation

INTRODUCTION

1. The Commonwealth Development Corporation (CDC) has been invited by the Sub-Committee to present written evidence on "the UK's Scientific and Technical Aid to Developing Countries".

2. CDC was established by Act of Parliament in 1948, now consolidated in the CDC Acts 1978 to 1986. The Acts charge the Corporation with the task of assisting overseas territories in the development of their economies. The Members of the Corporation are appointed by the Secretary of State for Foreign and Commonwealth Affairs and the Corporation is funded by concessional loans from the Aid Programme. Current Chairman is Lord Kindersley (to be replaced on 1 July 1989 by Mr Peter Leslie) and the General Manager is Mr John Eccles CBE.

3. CDC fulfils its statutory duties in three ways: by making loans available at competitive rates for projects in both the private and the public sector; by taking equity capital in projects; and by lending to financial intermediaries such as development banks and finance companies. In addition, CDC can provide management and other services on a contract basis to its projects. In this sense, CDC acts as a holding company to its overseas subsidiaries. CDC is empowered to operate in British dependent territories and, with Ministerial consent, in any other developing country, and at present has projects in about 50 countries. It keeps closely in touch with its projects and investments by maintaining a network of 20 offices worldwide. Current commitments are running well in excess of £100 million per annum and the total of investments and commitments to date exceeds £1 billion.

4. Since CDC's on-lending rates and terms are "harder" than the rates at which CDC borrows from the Aid Programme, it is able to recycle funds not required for repayment to the British Government for further loans and investments. Of funds currently available for investment, less than half are in the form of new drawings from the Aid Programme.

CDC'S APPROACH TO ECONOMIC DEVELOPMENT

5. Although CDC is funded by loans from the Aid Programme, it does not make grants or provide technical assistance, which are the functions of the Overseas Development Administration (ODA). CDC complements the Aid Programme by providing a source of loan and equity capital to projects which are able to service their loans and produce a return on their equity. Although, strictly speaking, CDC is not therefore providing "aid", CDC believes that the sub-Committee may be interested to hear how the provision of long term development funds to projects by CDC helps to promote the host countries' scientific and technological development as well as, and as part of, their economic development.

6. CDC is part of the Aid Programme and is required to establish the developmental value of any investment which it makes. This it does by calculating the economic rate of return, including the economic costs of protection. In general, therefore, CDC aims to avoid projects using inefficient and out-of-date technology which could only survive behind protectionist barriers.

CDC AND THE TRANSFER OF TECHNOLOGY

7. CDC does not itself carry out, fund or have facilities for scientific or technical research and a "CDC project" in this memorandum must be understood as a project, company or institution which is a recipient of CDC investment, not as a "project" in the sense that the scientific community might use the term. However, because CDC is statutorily required to promote economic development, and as an essential part of this function insists that projects in which it invests should show long term sustainability, CDC is inevitably involved in the use of modern technology. To be able to survive in a competitive environment, CDC's project are obliged to pursue the most efficient means of production by constantly upgrading their technology. Examples of the mechanisms by which such technologies are transferred or adapted will be given later in this Memorandum.

8. CDC aims to promote the transfer of skills to nationals of developing countries through joint ventures

26 April 1989]

[Continued

with enterprises from industrialised countries and also by itself providing management. This is one means of technology transfer to the Third World. In addition, it is an inherent part of CDC's working methods to encourage frequent visits to projects by technically qualified staff or consultants. Visits are made for the benefit of projects and to advise management on relevant technical issues; they also provide a useful feed-back into CDC about the technical performance of the projects, and enable the transfer of technical experience from one project to another, as well as from other sources. While it remains one of CDC's fundamental long term aims to assist projects to be self-sufficient in all matters relevant to their business, including scientific and technical matters, CDC maintains a willingness and ability to provide, or direct projects to, appropriate sources of technical assistance and information when needed or required.

EXAMPLES OF TECHNOLOGY TRANSFER

9. We list below four examples where CDC finance has assisted the transfer of scientific and technical aid to developing countries. The first example, which is provided in some detail, concerns the promotion by CDC of cocoa technology and research at a major CDC-owned and managed project in Sabah, Malaysia. The other three examples, respectively from India, St Lucia and Tanzania, illustrate the role of CDC in transferring technology to projects in which it is not itself a major shareholder or the corporate manager.

Example 1: CDC Activities in Cocoa Technology, Malaysia

10. CDC's activities in cocoa technology are centred on BAL Plantations Sdn Bhd in Sabah, Malaysia. This wholly owned subsidiary, which has been under CDC management since its creation in 1949, supports about 14,000 workers and their dependants, growing about 6,000 ha of cocoa in addition to 8,000 of oil palms and nearly 1,000 ha of rubber. CDC has six other cocoa plantations in four different countries.

11. High yields of all three crops are obtained by use of technically advanced production practices, backed by modern processing facilities and supported by efficient management. Corporate management provided by CDC includes general agricultural and engineering advice based on CDC's global experience.

12. BAL has a Scientific Department of five Malaysian and one Pakistani scientist with 72 supporting staff to maintain technical excellence. The department is advised by CDC's London Office specialists in soils, nutrition and plant breeding, with additional inputs as required from UK universities and research establishments. London Office itself is supported by a panel of nine eminent scientists, all of whom are acknowledged experts in tropical agriculture.

13. One part of the scientific programme aims to optimise inputs, with emphasis on ecologically sound long term land use. This involves work such as introduction of biological control measures for insect control in place of insecticides, which has been especially successful in oil palm where BAL has been a leader, and control of nutrition by regular sampling and laboratory analysis of soil and leaf material, backed up with formal experiments based on modern biometrical methods.

14. The second part of the scientific programme raises the yield potential. BAL has produced hybrid cocoa seeds for twenty years and a large part of Sabah's cocoa production (68,509t in 1986) is from BAL material. A cocoa breeding programme initiated in 1985 will further increase yield and quality and reduce dependence on agro-chemicals. The germplasm for this programme is being obtained from the centre of diversity of the crop in the area of the headwaters of the River Amazon through intermediate quarantine at Reading University, with both BAL and CDC contributing to the cost of this work.

15. The breeding is complemented by an agronomy programme which will realise the full potential of the new material, much in the way that cereal production has benefited from combined new varieties and husbandry practices.

16. A comparable development in oil palm is introduction for trial evaluation of clonal material produced in tissue culture, in collaborative programmes with Malaysian, British and French partners.

17. The husbandry methods developed at BAL and the results of its scientific work are made freely available. Dissemination of this information is by welcoming large numbers of visitors, sales of planting material, scientific publications, presentations at conferences and the global work of BAL's CDC advisors. The cocoa germplasm at Reading University is available to all countries.

18. CDC uses BAL as a technical base for new estates in other countries. Cocoa seeds have been sent to Indonesia, Solomon Islands and Vanuatu and BAL's husbandry methods, suitably modified, are successfully used. When CDC began cocoa planting in Papua New Guinea, the Corporation's seed production methods were used to produce very high quality planting material. Early results from BAL's cocoa breeding programme are also being used to develop improved varieties in the Solomon Islands and preparations for a similar transfer to Papua New Guinea are in progress. In Papua New Guinea the seeds supplied to neighbouring smallholders are the same as those used by the estate, from which husbandry methods can be copied.

19. Technical improvement of any crop is a global effort. BAL as the pioneer of cocoa production in

26 April 1989][Continued

Sabah is maintaining its role as a technical innovator. CDC guides this work, supports it financially and ensures rapid and effective distribution of the benefits.

Example 2: Power Steering Equipment Manufacture in India

20. Rane Power Steering Ltd is an example of CDC's role in the transfer of technology to developing countries, a project set up in 1988 to establish a factory in India to manufacture power steering equipment for heavy vehicles.

21. One conclusion of CDC's investigation was that the success of the project will depend upon very high standards of dimensional tolerance and surface finish only achievable using computer numerically controlled machine tools. As is usually the case, the sponsor had already established a relationship with a technical partner in the course of preparing the feasibility study. A fundamental aim of the CDC appraisal was to satisfy itself that the technology was the best available, and was appropriate to the developing country, and that both the technical partner and the recipient were capable of transferring the technology effectively. All other things being equal, preference is given to technology of UK origin. However, the over-riding priority is that the project gets the best available support, which in this case came from the USA. Discussions were held with both parties, and with others experienced in the vehicle component industry. A detailed review of the technical collaboration agreement was carried out, to ensure that the sponsors were getting a fair deal, and that the scope included training, commissioning of the plant, and continuing support, until the project could stand on its own feet. The legal enforceability of this agreement was made a precondition for CDC investment.

Example 3: Electricity Generation in St Lucia

22. St Lucia Electricity Services Ltd (Lucelec) is the electricity utility of St Lucia and CDC has, over the years, been primarily responsible, in partnership with the St Lucia Government, for the creation and development of the company. The provision of reliable power has clearly been a catalyst for other development on St Lucia.

23. CDC not only has substantial investment commitment to Lucelec, but it also manages the company and provides substantial technical support and staff, including "visiting engineer" services.

24. A new diesel power station at Union was built early in the 1970's using entirely in-house consultancy expertise: 2.6 MW 600 rpm 16 cylinder Allen diesel generators were selected as most suited to the task. A second smaller station was built at Vieux Fort. Design and purchasing philosophy was to maintain the highest degree of reliability and thermal efficiency by the simplest means. Only well proven technology was adopted.

25. Particular attention is given to ensuring power stations and the system as a whole are operated and maintained to a high standard. Regular visits by CDC's senior engineers, availability of CDC's London procurement expertise and purchasing services are examples of the methods by which CDC ensures that the project maintains and improves its standards. The services are used especially for "trouble shooting", and acting on behalf of the project in technical discussions with equipment manufacturers and other sources of information.

26. Lucelec and CDC are currently actively involved in the design and procurement of a new power station and 66 kV transmission line to enable St Lucia's growing demand to be met into the 1990s. Consulting engineers Kennedy and Donkin have been selected for the detailed engineering and supervision, while Balfour Beatty/Higgs and Hill and Krupp-Mak have been contracted to execute the mechanical, electrical and civil works and supply the 500 rpm 6 MW six-cylinder diesel generators respectively. Design philosophy is fundamentally unchanged from that adopted for the Union power station, but certain technological advances which have proven themselves over the last decade are being introduced: these include some SF₆ high voltage switchgear, fibre optic communication links, solid state protection equipment and comprehensive engine monitoring instrumentation and data logging. The latter in particular is aimed at improving reliability and fuel economy through greater operator awareness of engine condition.

27. Sources of energy as alternatives to diesel power, including solar, wind and hydro, have all been studied in detail, but none has yet demonstrated that it is more economical than diesels. Geothermal sources also exist and CDC has advised Lucelec on policies for development.

Example 4: Tea Processing Technology, Tanzania

28. CDC manages and is majority shareholder in the East Usumbara Tea Co Ltd (EUTCO), a tea plantation in Tanzania.

29. In the design of the associated tea factory in 1988 particular attention was given to saving fuel for the energy-demanding tea drying process.

30. Traditional tea drying is carried out by burning wood or oil in stoves or boilers, and producing the hot air for drying using air to air or steam to air heat exchangers. Thermal efficiency of such systems in practice is generally about 50 per cent.

26 April 1989]

[Continued

31. In the interests of simplicity and fuel economy, CDC decided to specify hot gas generators for EUTCO's factory, and are purchasing a new unit designed by Babcock-Robey Ltd of Oldbury. Whilst the feasibility of hot gas generators in the application has been demonstrated elsewhere in the world, it was felt that these new British designs were potentially superior.

32. The new models involve two firebrick chambers: wood is gasified in the first, while the resulting produce gas is burned in the second with further air. The products of combustion are so clean that they can be used directly for tea drying without tainting the product. With proper insulation, the thermal efficiency therefore approaches 100 per cent, virtually halving fuel consumption.

33. The unit is not only cheaper than other systems, but annual fuel savings approximately equate the capital cost.

CONCLUSION

34. The examples given above, though not illustrations of conventional aid or technical assistance programmes, show, in CDC's view, how development finance, allied to management and technical support, can result in effective scientific and technological transfer to developing countries. CDC would be happy to provide further examples or details on request.

10th April 1989

Examination of witnesses

Mr J ECCLES, General Manager; Mr D STEPHEN, Director of Corporate Relations, and Mr D PIERSON, Head of Evaluation and Planning, Commonwealth Development Corporation, called in and examined.

Chairman

238. Mr Eccles, thank you very much for joining us today. May I thank you very much for the memorandum which you have supplied to us, which was extremely helpful. I think we would like to explore a little bit further initially what your financial objectives are, but first of all would you like to introduce your colleagues?

(Mr Eccles) Thank you, my Lord Chairman. David Stephen on my left is our Director of Corporate Relations, and Derek Pierson on my right is Head of Planning and Evaluation.

Baroness White] So you have lost your agriculturalist and engineer on the way?

Chairman

239. Lady White, I am afraid I announced before your arrival that the team has been changed.

(Mr Eccles) We sent another list. I think the point was that we started out under the impression that the questions would be rather scientific and technological. When some indication of the line of questioning came to us we thought we had better change our team.

240. Thank you. Could we start by asking you to expand a little more on your financial objectives and how you go about meeting them?

(Mr Eccles) Yes, my Lord Chairman. We, under our Acts of Parliament which were consolidated in recent years, have a duty to assist in the development of the economies of the countries in which we operate. We have to do that by investing in enterprises, and we have to invest in those enterprises in such a way that we cover our legitimately incurred expenditure with our income, taking one year with another. It is a classic nationalised industry phraseology from the '40s.

241. So you do not expect to make a profit?

(Mr Eccles) In order to cover one's expenditure with one's income, it is better to come out slightly on the plus side rather than on the minus side. In fact, we have made a modest surplus in every year since 1955.

Lord Perry of Walton

242. Is that the surplus excluding the ODA input?

(Mr Eccles) No, my Lord, that takes into account the totality of our financing. The input from the ODA is by way of a tranche of loans year by year, currently £50 million per annum, lent to us at concessional rates.

Chairman

243. That is capital?

(Mr Eccles) That is our capital.

244. It does not come into your revenue account?

(Mr Eccles) No, that is our capital. We are entirely funded by loan capital, but there is within that loan capital, as is expressed in the Public Expenditure Estimates, a grant element which amounts to approximately 50 per cent, because the money is lent to us at 3.5 per cent for 25 years, with a seven-year grace period at the present time, and clearly that is highly concessional.

245. Do you get an additional £50 million lent to you each year which you then use to invest?

(Mr Eccles) No, my Lord Chairman. We do get an additional £50 million, but at the same time we are repaying approximately £20 million from loans lent to us many years ago.

246. So your net intake of capital from ODA is about £25 million a year?

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued]

[Chairman Contd]

(Mr Eccles) Yes, £27-£28 million at the present time.

Lord Adrian

247. Does that mean that you have a large portfolio of loans and equity that can be described as yours in some technical sense?

(Mr Eccles) Indeed, we have an outstanding loan account with the Government of just over £500 million.

248. That is what you owe the Government?

(Mr Eccles) That is what we owe the Treasury.

249. What are you owed by the concerns?

(Mr Eccles) We have a portfolio—let us do it gross and net of provisions—which is just over £750 million. That splits as to around £135 million in equity and £625 million loan.

Chairman

250. Then could you expand a little bit on the equity part of the portfolio? Is that long-term investment as long as the client needs it, or do you sometimes sell it so as to make a profit on it and then reinvest that money?

(Mr Eccles) Most of the equities by force of circumstances are held for a very long time. We do have a disposal policy which is that we are a willing seller in a willing seller/willing buyer market, but our problem is to find a market in most of the countries in which we operate.

251. Is that because the projects you invest in are not very profitable, they are more for the benefit of development rather than to make money?

(Mr Eccles) They vary very widely, my Lord Chairman. Some of them are highly profitable. Our most profitable project is in a container terminal in Hong Kong, which you would readily see could be expected to be very profitable. On the other hand, we have had a large proportion of our minority equity projects that are not performing at the present time, some of them simply because the projects or the enterprises are very young and some of them because they have never given a satisfactory equity return to their investors.

252. Could we take that investment in Hong Kong, because that could hardly be described as a developing country. It would appear that that very profitable project could be sold, so why do you hang on to it?

(Mr Eccles) Indeed, it could be sold. The particular circumstances are that we hold 6.86 per cent of the shares in a terminal company in which the principal shareholder is Y K Pau. It is a closed company with private shareholders, and it is extremely difficult to get the right price for the shares. The trade-off between income and the capital receipt has so far appeared to us to make it better to hold the shares.

Lord Walston

253. Roughly speaking, out of your annual investments and loans, how much comes from the

£50 million (less repayment) from ODA funds and how much comes from your own self-generated resources?

(Mr Eccles) Roughly speaking—and again, years vary—at the moment we are disbursing £125 million per annum. That is probably the right figure in the year to 31 March just ended. So we are making that investment, with £50 million of new money coming in from the ODA, but £25 million of old money going back to the ODA. Thus £100 million out of the £125 million is coming from revolving funds out of our existing portfolio.¹

254. You are empowered, are you not, to borrow elsewhere on the market?

(Mr Eccles) We are indeed empowered to borrow through an overseas subsidiary, but at the present time that is proving difficult to bring to fruition. All of our borrowings require Treasury consent, and the Treasury consider themselves, I think quite correctly, contingently liable for any problems that might arise from CDC borrowing. Therefore, they put very stringent conditions upon borrowing through an overseas subsidiary, and we have not yet been able to meet those conditions.

Baroness White

255. Do the Treasury provide a formal guarantee?

(Mr Eccles) They provide a letter which I think the bankers would regard as a guarantee, yes.

Chairman

256. Would it not be possible for that subsidiary company to be entirely independent, as it were, from the guarantee point of view, so that you can borrow money on the strength of its operations rather than on the strength of the Treasury guarantee, and then you would be out of the claws of the Treasury?

(Mr Eccles) I can only say that at the moment we have not succeeded in persuading anybody that that is a course that could be followed.

Lord Walston

257. But are you restricted at the present time, in the activities you would like to follow, by shortage of cash? Would you be happier if you could lay your hands on more capital?

(Mr Eccles) We are reaching a time in which we

¹ Footnote by witness:

Statement of Overall Return on CDC's Investment in 1988

	Investments			Income in 1988		Rate of return
	At end 1987 (£m)	At end 1988 (£m)	Average in 1988 (£m)		(£m)	(%)
Equity	124.0	139.5	131.7	Dividends	15.1	11.5
Loans	563.4	624.5	594.0		52.5	8.8
Total	687.4	764.0	725.7		67.6	9.3
Less provisions	115.6	140.5	128.1		—	—
Net portfolio	571.8	623.5	597.6		67.6	11.3

Ignores short term deposits and cash.

Ignores other income including commitment, negotiation and other fees.

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued]

[Lord Walston Contd]

will be reining back on what we could do, because of a shortage of financial resources, yes. I would not want to overstate that point, because our portfolio is growing modestly in real terms and I do not think we would want to expand it very fast, because that possibly would take us into an area of high risk on the grounds of competence and ability to keep up with what was going on in so many parts of the world. But yes, we would like modestly to expand from what we are at present achieving. Possibly an additional input of some £25/35 million a year would be extremely helpful. I can say that the ODA is very sympathetic to that point, and that we are working closely with them to try to ensure that that does in fact happen.

Chairman

258. Supposing you were able to borrow some of that in the markets at a higher interest rate than you now pay to the Government; would that be a viable proposition for you, do you believe?

(Mr Eccles) Yes, I think it would be viable. There would be certain further issues that would need to be tackled. At the present time we have a target agreed with the ODA that 60 per cent of all of our available resources goes into the poorer countries as defined by the World Bank definitions and the ODA definitions. I think we would seek, if we ever had a substantial amount of borrowings on the market, some relaxation to move to a greater extent into middle-income countries, whilst not diminishing the level of resource going into the lesser developed countries, but simply the percentage.

Lord Perry of Walton

259. I do not know that I got your statement accurately the first time. The total gross investment now, you said, was £750 million?

(Mr Eccles) Yes, £750 million.

260. On which you get a return gross of £29 million?

(Mr Eccles) No, my Lord. I am not sure where the £29 million comes from.

261. There is an element of support or grant in the rate of interest?

(Mr Eccles) The calculation is that the grant element of the loans is approximately 50 per cent of the face value of the loans.

Lord Thurlow

262. I have tried without success in days gone by to get CDC to support a project in territory I was acquainted with. What criteria, in addition to the economic rate of return, are used to determine the developmental value of a project and to measure its success?

(Mr Eccles) Our list of criteria starts with job creation and it goes through the impact on foreign exchange earnings, which has to be calculated gross and net; contribution to government revenues similarly; some calculation on the increase or reduction of economic dependency on a narrow range of exports, as it might be; distribution of the benefits

to the people involved in the enterprise; standards of housing and health and educational facilities; health and safety and the availability of such services, either severally or jointly with the local government authorities; social impact; disruption of traditional village life or other factors of that kind which may very well be involved in the creation of modern enterprises; impact on food and the availability of food, as to which again agricultural projects may be a serious concern; then any potential detriments to the environment. We look at the projects to see whether or not they may have an outreach element—that is to say, be a catalyst for further development or replication or demonstration value in the district, particularly true with many of our agricultural enterprises. Then overriding everything really is the question we ask ourselves about long-term sustainability: Is this enterprise likely to be able, on both financial (if I may bring that in now) and developmental grounds, to be able to survive and prosper?

Chairman

263. Who makes the evaluation of all those items? Is it your own staff or consultants?

(Mr Eccles) Mainly our own staff, but we do employ a lot of consultants. We also rely on studies done by other institutions of like mind, particularly if we are co-financing. Then we present the results of these studies to our board.

Lord Thurlow

264. How many local offices have you got scattered about the world?

(Mr Eccles) Just about 20, which is a much larger number than any comparable institution of our sort of size.

Lord Perry of Walton

265. Who are your partners in co-financing?

(Mr Eccles) World Bank agencies, notably the IFC; European bilateral agencies with whom we have very close relations, particularly the German DEG and the Dutch FMO; and the Asian Development Bank, African Development Bank, a whole range of the institutions that you would expect to find.

Chairman

266. Are most of your projects co-financed?

(Mr Eccles) All of them now are co-financed, but the simplest form of co-financing would be a local partner and CDC, a partnership of two. So apart from other institutions and commercial banks and sometimes British companies or European companies, we are *always* wanting to find a local partner.

Lord Perry of Walton

267. If there is not a local partner with the capital necessary, with the sort of funds required, does the project die?

(Mr Eccles) It is extremely difficult for us now to take 100 per cent of a project.

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued]

[Lord Perry of Walton *Contd*]

268. Even with a World Bank or other bank partner?

(*Mr Eccles*) The World Bank would *never* go into a project without a local institution. It is part of their statutes. We could do it, but we do not, although we still have a few 100 per cent owned enterprises around the world.

Chairman

269. So a local partner is almost a *sine qua non*?

(*Mr Eccles*) Yes, that is a policy decision, and preferably we seek a private enterprise partner. If not, then a government institution or a para-statal.

Lord Perry of Walton

270. How big does the local contribution have to be?

(*Mr Eccles*) We are reluctant to take up more than 50 per cent of the equity, although recently, in exceptional circumstances, we have gone as high as 60 per cent.

271. That applies even if there is a bank as well as yourselves?

(*Mr Eccles*) Yes, I think local participation of under 40 per cent would give us difficulties.

Lord Walston

272. How much are you influenced by the politics of the country concerned?

(*Mr Eccles*) It says in our agreement with the ODA and the Government, and in a number of different places, that our job is to do as much development as is consistent with the constraints under which we operate, and political constraint is one of the constraints which is recognised. I suppose we try hard not to spend too much time on politics, because we do not really regard that as our job. We are there to create economic development. Our privilege, being small, frankly, is to invest somewhere else if things get too difficult. I think that basically is our policy line. We would not seek to do much missionary work or spend a great deal of our rather scarce time and skill on persuasion. We would say, "Well, it looks as though this is too difficult for CDC. Perhaps we'd better think again and go somewhere else".

Chairman

273. Would Mr Pierson like to add anything to this, as to the project planning and evaluation, since he is involved there?

(*Mr Pierson*) We look at the overall development value. Obviously we operate in quite a number of difficult countries and we take the politics into account, but it forms part of an overall assessment of the development value.

274. Where do projects originate?

(*Mr Eccles*) The primary responsibility of the 20 offices overseas is to take us into new projects. As to where they actually originate, it is from a whole number of sources. It can be, and very often is, local entrepreneurial sponsors.

275. They would come along to your local office and say, "We have a project we'd like help financing"?

(*Mr Eccles*) Yes indeed, although we like to think we market ourselves and we go out to look for them. We are actually out trying to find good projects. So our representatives get out and about a lot and find them. However, the projects also come from suggestions from governments and from government institutions. They come from other development finance institutions. They can come from British companies. They can come from consulting engineers who very often have an early information system about where things are likely to take place. They come from all sorts of quarters. One of the things that we feel is very important is that we should keep our eyes and ears open, listen for what is going on and find these projects from wherever they can be found.

276. On occasion you might go along to the local people and say, "We believe there's a great opportunity here. We'd be prepared to invest £X million in it"?

(*Mr Eccles*) We have done that, particularly in tropical and semi-tropical agriculture, which is half of everything that we do. That is our main, deeply rooted expertise. Recently, we have, for example, decided to grow rattans as a plantation crop. That is the material out of which bamboo furniture is made, and it is becoming in short supply in the wild. If that industry is to thrive, it will be necessary to start planting. I think that that basically was our idea. We have found local partners who have made land available and who would like to invest in that project. We have worked that up with our own technical staff.

Lord Adrian

277. How do you recruit the people who are in the 20 offices overseas? They seem to be a rather crucial link in your processes. Perhaps they come from all kinds of different backgrounds.

(*Mr Eccles*) Most of the people in the offices are financially trained, but in addition to the people in the offices we have a larger number of people working on projects and they are mostly qualified agriculturalists. We have around 100 agriculturalists and engineers most of whom are overseas.

278. They would be sent overseas and be based overseas in your offices?

(*Mr Eccles*) No, they are not in our offices. They will be actually on projects. We also hold a central team of agriculturalists and engineers in London. They go on mission work. We used to have engineers and agriculturalists distributed amongst offices. There are two problems with that. One is that it is a very expensive thing to, though perhaps that was not the main problem. The other is that in an age of specialisation you always found that the man you wanted for citrus happened to be in the wrong country and the man you wanted for oil palm was also in the wrong country. So we found that it is better to hold a central team and do more travelling. Of course, travelling has become very much easier than it used to be.

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued

[Lord Adrian Contd]

Lord Walston

279. In your earlier days you had quite a large body of people with previous experience of the countries in which you have operated, former Commonwealth civil servants and so on, with a great deal of local knowledge, not only technical local knowledge but of the people themselves whom they were dealing with, from the top politicians down to the peasants. Are you still able to acquire that type of local knowledge, and do you think it is an important part of your work to have it?

(*Mr Eccles*) We are always worrying about whether or not there will be continuity of experience, but CDC has been in existence for 40 years. We have acquired quite a large measure of continuity of our own now. To date we have *not* found it to be difficult to any degree to recruit people who have got the right skills and the right experience.

280. But you do think it is important to have a continuity of local knowledge?

(*Mr Eccles*) Tremendously important.

Baroness White

281. Is your headquarters staff nearly all UK based?

(*Mr Eccles*) Our headquarters staff is all in one office in London, but most of the professionally qualified people in it have served overseas and many will expect to serve overseas again, so that there is a transfer going on all the time between working here and working overseas.

282. Yes, I understand that. I used the word "based", but I might say "of UK origin". In other words, do you recruit to your senior professional staff persons from other territories or not?

(*Mr Eccles*) Yes, indeed we do. Perhaps I may stay with the offices for a moment rather than the projects as to which there clearly is a difference.

283. I was thinking of the administrative and financial people mostly.

(*Mr Eccles*) We have steadily recruited over the years mainly qualified accountants in the countries. The thing we have not yet cracked is the transferability of those executives from their home country to other countries. That is a restriction. We live in hope that we will get over that one as well.

Chairman

284. Are any of the London staff from overseas?

(*Mr Eccles*) Ethnically, my Lord, yes, but I think that probably I am right in saying that they all carry British passports except for one person who has a Guyanese passport.

285. But on the whole?

(*Mr Eccles*) Yes.

Lord Shackleton

286. How do you recruit? How many people do you recruit simply for London, assuming that they will also have to go overseas? You are talking about the loss of people coming up to retirement. With the

development of new management techniques and project management in particular, do you seek to go to people who are specialised, people like Coopers and so on, in order to find competent project managers and organisers?

(*Mr Eccles*) We mainly do our own recruiting.

287. How do you know who is available? Presumably a lot of people employed by other agencies, including ODA, would be civil servants who would be useful to you.

(*Mr Eccles*) In general, I would say that none of our staff has a Civil Service background.

Baroness White

288. You regard that as an advantage, obviously?

(*Mr Eccles*) No. I think that we are doing a different job. We are basically running enterprises and businesses and therefore we are much more closely related to the professions that operate in industry and commerce than we are to the Civil Service in terms of the skills that we require. Our favourite method of recruiting is straight out of university.

Lord Shackleton

289. If they are straight out of university they may not have had much project management experience?

(*Mr Eccles*) No, but then we would not put them in charge of a project for a long time.

290. Where do your project managers come from? Have you trained them?

(*Mr Eccles*) Yes, mostly. They are mostly long-term career people within CDC.

291. You reckon they are as competent as any of the people who do specialise in project management, the sort of people they hire for the Channel Tunnel?

(*Mr Eccles*) My Lord, we have a marginal misunderstanding. Our enterprises are mostly conventional incorporated companies, so we are talking about managing directors, general managers, finance directors and production directors, not about project managers as with the Channel Tunnel which is a different set of people.

292. Then I assume you are really hands off in London, but at the same time you are concerned for the effectiveness of the particular company which is, to so speak, your agent? How, for instance, are the people at BAL recruited? Are they recruited locally, or have you recruited them?

(*Mr Eccles*) The managing director of BAL is a pensionable member of CDC staff. He has been working at BAL for 20 years. He and one other are the last carriers of British passports working on the BAL project. The remainder of the staff are recruited locally and they are mainly Malaysian of Chinese extraction—the senior staff. They are employees of BAL, they are not employees of CDC, and they do not come into our numbers of staff or our statistics. A large number of them are professionally qualified. The financial director is an extremely skilled accountant, for example.

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued]

[Lord Shackleton *Contd*]*Chairman*

293. To be quite sure we understand the position, you are a minority shareholder in that company?

(*Mr Eccles*) No, in that particular company we are 100 per cent owners.

294. But in other companies you are minority shareholders but you play a big part in choosing the management, do you not?

(*Mr Eccles*) There are some 20 companies in which we are 50 per cent or more shareholders for which we have corporate management responsibility. In that respect CDC acts as a holding company for a group of associated and subsidiary companies for which we carry a management responsibility. Those companies are not consolidated in our accounts, so one has to look for them. In the case of *those* companies, the great majority of the chief executives are CDC trained and CDC pensionable staff.

295. That is where you hold 50 per cent or more?

(*Mr Eccles*) That is right.

296. Where they are associated companies and you hold less than 50 per cent, what happens?

(*Mr Eccles*) We would normally not provide more than perhaps one member of their staff, mainly in an assistance role—very likely a financial controller or other financially qualified person.

Lord Shackleton

297. You talk about a “member of their staff”. Is that a member of their staff, or is it a member of the local board or a member of the executive board? Are you comparable to a big company which has a very large number of companies in which it may have a majority or minority interest, probably appointments on the board and occasionally moving in to change things if they go wrong?

(*Mr Eccles*) That is correct, we are very like that. We are a holding company.

298. Occasionally having to manage directly if things go wrong, or at least change the management?

(*Mr Eccles*) All of these companies have boards, and from time to time the management is changed as a result of the decision of the board.

299. Do you appoint to the board?

(*Mr Eccles*) We appoint directors to the board and our partners appoint directors to the board.

300. Some are equivalent to non-executive directors, are they?

(*Mr Eccles*) Indeed.

301. They may be members of your staff?

(*Mr Eccles*) Indeed, very frequently representatives in the offices overseas will find themselves on boards as non-executive directors. There is one point I would like to make: there has not been a “collapse” since I have been with CDC, which is only a matter of four years. We have not had a real drama to put right with a real failure of management. We have had some changes to make, but we have not had a major management failure, touch wood! We may have one tomorrow!

Chairman

302. Therefore, equally you have not had any companies going bankrupt?

(*Mr Eccles*) We have had companies in which we invest going bankrupt, but not one that CDC was managing.

Lord Perry of Walton

303. What proportion of your projects have a scientific or technical content? I have read the examples that you give. Obviously at the beginning there is a considerable technological input. From what you have been saying, though, the vast majority of your activity is commercial and financial management activity rather than scientific and technical, would that be fair?

(*Mr Eccles*) Yes, I think that our involvement in science as pure science is very marginal, and in research as research it is marginal. In development it is very extensive. In technology it is everywhere we go, because all our enterprises that we invest in have a technology content, with the indirect exception of investing in local development banks where it is at one remove, or housing finance companies. However, that is only about 10 per cent of our total involvement. I think the technology in our agricultural projects is very extensive, in all of them.

304. What proportion of your projects are agricultural?

(*Mr Eccles*) 50 per cent.

305. The others are what—fisheries, minerals?

(*Mr Eccles*) Very little in minerals at the present time; 25 per cent public utilities, mainly electricity, telecommunications and water; 10 to 12 per cent industry, and the rest is through financial intermediaries, the local development banks and housing finance companies.

Chairman

306. Yes, I noticed that. Could you pursue that a little further? What is the point of your lending to a financial intermediary? You are a financial intermediary yourself. Why not lend straight to the bodies to whom the financial intermediary is going to lend?

(*Mr Eccles*) It is a question of size really. There are a whole raft of opportunities, particularly in the private sectors of the countries in which we operate, where the size of enterprise is quite small and it is simply too expensive for us to do the appraisal and the monitoring, so we have tended, along with other finance institutions, to go through intermediaries and to provide them with staff resources, which has enabled them to put in systems which are similar to ours and operate them much more cheaply and with a much higher proportion of local staff.

307. You then rely on *them* to evaluate the projects?

(*Mr Eccles*) Yes.

Lord Walston

308. Going back to the scientific and technological aspect of it, would it be right to say that you act

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued

[Lord Walston *Contd*]

very largely as a bridge between the new discoveries and the new techniques and the actual implementation of them, through your experts, particularly here in London, but also elsewhere; that you have access to all the latest methods and the new seed breeding or whatever it may be, and through your local activities you have access to the people who are really going to make use of those, so you are a form of bridge between the two, is that correct?

(*Mr Eccles*) Yes, I think so, my Lord. An example with which you will be familiar—though I am afraid it is in Jamaica and not in St Lucia—is that we are managing and redeveloping a sugar estate at St Mary to bananas. There we have irrigation which takes one into quite a lot of technology and making sure you get it right.

309. Is that a very successful project?

(*Mr Eccles*) We have a fully guded estate because of the winds coming off the north shore of Jamaica. We have put in the latest planting system. We are going in for a new system of field packing as opposed to cableways and standard packing. We are keeping our fingers crossed that we are going to improve Jamaica's banana exports.

310. Not too much at the expense of others!

(*Mr Eccles*) No indeed, my Lord!

Lord Shackleton

311. You do this with knowledge you have in London already, do you, or is this something you have built up? Are you the principal bridge, or are there other bridges for science and technology?

(*Mr Eccles*) I would not want to overstate the extent to which we can achieve technology transfer, my Lord. Technology transfer is a very difficult subject, as I am sure we can agree.

312. I think that the word "bridge" is a little excessive, is it not?

(*Mr Eccles*) I do not recall using the word myself. I gave a description.

313. You did not query it, though.

(*Mr Eccles*) I am sorry. I think we do achieve technology transfer. If I may give you an example from the BAL project, it does say in the paper we have presented to you that the great majority of the cocoa in Sabah is grown from planting material which was supplied by the BAL project to other farmers in Sabah. So I think to that extent, yes. Cocoa yields have risen from about half a ton to coming on for 1.5 tons per—I always get muddled between acres and hectares, but the factor is right. A lot of that has been due to the way in which we have developed the proper planting material for the conditions in Sabah.

314. But that has been done by BAL, has it?

(*Mr Eccles*) Yes, which is 100 per cent owned by CDC.

315. It is, on the whole, running itself?

(*Mr Eccles*) Yes indeed, it is.

316. There are a lot of subsidiaries of big companies in industry, where the head office have not a clue as to how they run. I know of examples, and

it is just as well they do not interfere. However, in this case, do you get involved?

(*Mr Eccles*) Mr Tully might be entirely on your side!

317. It may be that if you are competent, that is fine.

(*Mr Eccles*) We do take a very deep interest in what is happening there. Perhaps I should say that I think at the height of the development of BAL we had 43 people carrying British passports on that project, and we now have one. That is an illustration of the extent to which the management has moved into local hands. We have regular visits to BAL by engineers and by agriculturalists, to see what is going on. Our cocoa breeder goes there very frequently and participates in their programmes.

318. The 43 people were employed by BAL, were they?

(*Mr Eccles*) No, those were CDC people.

319. And the one now is employed by BAL?

(*Mr Eccles*) No, the one is still employed by CDC.

320. He is seconded, is he? Who is his employer?

(*Mr Eccles*) The MD of BAL is an employee of CDC, seconded to BAL which meets the full cost of his employment. The commitment that we carry throughout is the funding and the guaranteeing of his pension.

Lord Perry of Walton

321. Is he one of the nine that you have on the staff in London?

(*Mr Eccles*) No, he is not in London. Bill Tully is the managing director in Sabah of the BAL project.

Lord Shackleton

322. But his pension is here?

(*Mr Eccles*) It is being funded here, yes.

Baroness White

323. What other agencies are there for the kind of technology transfer to which we have been referring? Technically you say that you do not dabble much in the more scientific sides of things.

(*Mr Eccles*) There is no other development finance institution that actually manages projects.

324. Do you mean by that no UK one?

(*Mr Eccles*) There is no other development finance institution that actually manages projects. There are plenty that appraise, write consultancy-type reports and evaluate, but there is none other that manages. We believe that we are more effective as an agent for transferring skills, because we have a management role.

325. When you say there is no other such institution, do you mean internationally?

(*Mr Eccles*) Yes, I do. Internationally, we are the person out of step.

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued

[Baroness White *Contd*]*Chairman*

326. You referred to transferring technology from BAL to other projects. Do you get paid for that, or is that a free issue?

(*Mr Eccles*) BAL runs a seed business on a commercial basis and it sells its seeds. I think that is probably correct, because if people are willing to pay for them they must be after a while worth buying.

Lord Shackleton

327. And some of their know-how in developing that?

(*Mr Eccles*) Yes. There is a very free interchange of know-how in the crop agricultural world about pests, diseases, experiences with planting material, fertiliser regimes and so on.

Lord Thurlow

328. If you wanted to, could you just divest yourself of BAL and sell it?

(*Mr Eccles*) Yes, but at the wrong price. It is a difficult subject in Malaysia. BAL is in East Malaysia. There is a great deal of political tension between East Malaysia and Peninsular Malaysia. To satisfy the authorities in both Kuala Lumpur and Kota Kinabalu that we were doing the thing in a way which they will accept and at a price which we would think reasonable, has so far proved elusive. It is our policy to dispose of part of our investment in BAL, and we will have to see how we get on with actually bringing it into effect.

Baroness White

329. If your virtues are as unique as you claim them to be, and this is a successful pattern, is not it rather curious that no other country with overseas interests has adopted a similar pattern? Your survival value is astonishing. I am just wondering why others have not copied your example, if it is a proven successful method of development for the country concerned and of what we call scientific and also technological transfer. Is it pure history because you started in the 1940s?

(*Mr Eccles*) Yes, I think that "survival" is a very appropriate word. CDC for a long time went on managing things when the climate of the times was against it and it was thought that it was inappropriate for a development finance institution to become characterised as a multinational or now a transnational. So there was a period during which everybody kept a bit quiet about it, I think. However, there are signs that things are changing. The IFC has recently been the catalyst for setting up an African management service company.

330. The IFC?

(*Mr Eccles*) The International Finance Corporation. It is the market-oriented wing of the World Bank and it is a private sector investor. They have been the catalyst for forming this company in order specifically to provide management services to African enterprises. They intend to recruit expatriates for that purpose, but also citizens from Africa.

I think that there is increasing recognition that management is a very scarce resource, and that it is wise to go and look for it where you can find it, if the skills are there and the willingness to operate is also there.

Baroness White] So you are suggesting that perhaps IFC has learnt lessons from your experience? Can you see signs of anyone else learning such lessons?

Lord Shackleton

331. IFC has been going a long time, though, has it not?

(*Mr Eccles*) Not providing managers.

Lord Walston

332. But you have your own managers, whereas they will have to go out into the market place to look for them, will they not?

(*Mr Eccles*) It will be done through this intermediary, African Management Services, in which they have a controlling shareholding, and we have taken a small shareholding in support.

Chairman

333. Whether other organisations follow your example shows it is a good example to follow, does it not?

(*Mr Eccles*) I am hesitant to go down that particular path.

Baroness White

334. I just wanted to ask the question that I did because CDC is a very unusual organisation in present-day circumstances, is it not?

(*Mr Eccles*) Yes. There are no easy, accurate comparisons to be made with another similar institution.

Earl of Ilchester

335. In your memorandum you say that in choosing technology "the over-riding priority is that the project gets the best available support", and this may not be British. On the other hand, UK aid is generally tied to British goods and services. In your view, does this undermine the quality of that aid?

(*Mr Eccles*) May I be excused from commenting? I do not know the answer to that question. We do not have a tied procurement policy.

336. Perhaps I can add a rider to that. In applying priority in choosing the best technology for a particular project, is there any implication for reaching your ultimate goal in sustainable development?

(*Mr Eccles*) Yes, I am sure that there is. Our defined duty is to assist in the development of the economy by investing in enterprises. The viability and sustainability of the enterprise is crucially dependent upon the selection of the technology and the management and the method of financing. We do go for state-of-the-art solutions rather than trying to angle any other objective.

337. You mentioned right at the very beginning

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued

[Earl of Ilchester *Contd*]

the importance of sustainable development as a prime objective. I was interested to read about one of your examples to do with cocoa development. Does the fact that you have been going since 1948 in that particular project, and the fact that the company—which is BAL is 100 per cent owned by yourselves, mean that you are never going to reach sustainability in that project, or that it *has* been reached and you continue to be associated with it?

(*Mr Eccles*) It has sustained itself very successfully to date. It has seen all sorts of ups and downs. It is very satisfactorily profitable at the present time. We *are* expanding it modestly, but we would very much like to dispose of part of it at fair value.

338. Since you have been going, has there been a project in which you are satisfied that sustainability has been reached, and you have actually pulled out?

(*Mr Eccles*) We would never exactly pull out, because we are handling British public money. We could not fulfil our statutory obligation simply by handing things over. Our balance sheet would rapidly go wrong if we were to do that. It is a difficult question. I think that a very large majority of all the projects that CDC has been involved in could be classified as sustainable—a very large majority. We have had very few outright failures. We have had a lot of projects that do not perform as well as they might be expected to perform.

339. But your list of projects is growing all the time?

(*Mr Eccles*) No, because a lot of our investments are loan only, therefore by the success of the project and the repayment we come out of a lot of projects just by a process of time. It is the projects where we have the major equity stakes, and, indeed, a lot of them where we have a minority equity stake, where the question of disposal is more difficult. We have for a long time had about 250 projects in total. We now have about 275 altogether. I would be concerned if that number rose above 300, and we would have to think quite hard about how to realise the value out of more projects in order not just to let the number rise.

Lord Walston

340. Have you, in your history, divested yourself of 100 per cent of the equity of any projects for what you consider an adequate price?

(*Mr Eccles*) Yes, in times past we owned a lot more companies 100 per cent than we do now. Typically, some of the Caribbean electricity undertakings would have been cases in point where we started out as the owner/manager on behalf of the Colonial Office, and most of those have now been entirely disposed of.

341. So you do not hang onto everything that you invest in, by any means, you do dispose of them if you can do so for good reasons and at a fair price?

(*Mr Eccles*) Yes indeed. We are making disposals all the time.

Lord Shackleton

342. Some are privatised and some are nationalised, are they?

(*Mr Eccles*) There was a time when there was a degree of nationalisation going on—for example, in Nigeria and in Guyana, to take two countries which spring to mind. We would resist the moving of our investments further into the public sector, quite frankly, at the present time, because experience has shown that on the whole they do not perform so well once they get into the public sector as they did when they were not.

343. Tell Mrs Thatcher that!

(*Mr Eccles*) I am not sure that Mrs Thatcher is all that aware of our existence. I am not sure that we all want her to be!

Lord Perry of Walton

344. That is measuring performance in financial terms?

(*Mr Eccles*) Yes. I think that we have come to the conclusion that, on the whole, governments do not run businesses very well.

345. In terms of finance? That is the question.

(*Mr Eccles*) Yes. I suppose that also we have concluded that sustainability does require that the P and L, the cashflow and the balance sheet remain reasonably sound.

Chairman] It is a difficult balance to hold.

Lord Walston

346. In the light of that comment, might I ask if you would consider that you are in certain respects more analogous to multinationals or companies that invest overseas, such as Unilever and so on, the only difference there being that you do have access to more group capital than they do and that you do have constraints on your returns, you have to do good, whereas they have to do good to their shareholders? Otherwise, the way you run it, you are much closer to them than you are to most aid agencies, are you not?

(*Mr Eccles*) I do not think we occupy a similar position to the Unilevers of this world, in this respect: that they first of all are accountable to shareholders, and we have no share capital; secondly, they are primarily involved in marketing branded products, and to consumers, whereas our stock in trade is to provide money and, alongside the money, to provide other services, technology, management, marketing, whatever. So I think we are really a long-term investment bank, in so far as one can put a private sector description on what we do. In balancing our portfolio we do not, as Unilever might, think about the balance of products and markets; we think more about the balance of our overall position in potentially 50 countries, and how we balance our political risks, our financial risks and long-term investing risks. To do that we have this 25 per cent, for example, in utilities, which is a much safer form of lending than lending for Jamaican bananas or equity and lending for Jamaican bananas. So I think

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued

[Lord Walston Contd]

we approach it really on a rather *sui generis* basis. We are not really looking at it either as a conventional development finance institution or as a multinational but as some sort of middle position.

Lord Shackleton

347. May I disagree with you a bit? I think you are very much like a multinational finance house which may have a very big project with the government of the country, with maybe even more than 50 per cent, but with the effective management and the money provided by the multinational. I think there are analogies, but I would not want to pursue this. I can think of several in developing parts of the world similarly where, indeed, the local venture takes on a life of its own, sometimes very independently of the holding company.

(Mr Eccles) It is extremely important to us that these enterprises do take on a life of their own. That is very very important to us.

348. Providing public services, training, education, all sorts of things, do they not?

(Mr Eccles) Yes.

349. Starting new local enterprises also. Presumably you would also hope to see with some of these big projects that they do everything that they can to stimulate local enterprises, to help them? Do you look at that?

(Mr Eccles) That is extremely important. Again, we go back to BAL. One of the people who became quite senior in BAL is now a contractor and he is actually working in Sarawak on a project which we finance, as an independent contractor, having learnt his trade with us at BAL. I think that this outreach or spin-off from what we are doing is tremendously important. We like to follow that up and try to make sure that it is happening.

350. But you would discourage them from, say, cutting down trees in Sarawak?

(Mr Eccles) We would never go into primary rain forest.

Lord Shackleton] I am glad to hear it.

Lord Perry of Walton

351. You said you got your money from ODA at 3.5 per cent. Do you have a standard rate of lending it to the project?

(Mr Eccles) We have interest rate bands. They range from 7 per cent to 10.5 per cent, depending on the type of project and the length of time for which the money is lent.

352. In other words, because of your advantage in borrowing, you can lend at an advantageous rate against other sorts of development finance?

(Mr Eccles) Yes, we are lending at below market rates for sterling, but we do have a wide interest spread because of the risky nature of the lending that we do and the size of the problems we have with late payment and with default.

353. That means that the rate band that you use

is not related to the ability to pay so much as the risk of the venture?

(Mr Eccles) We try to keep a standard interest rate policy and not to make judgements between one country and another, so we take it on the type of enterprise and what that enterprise can reasonably be expected to achieve in the form of debt servicing.

Chairman

354. So it is on ability to service the debt rather than on risk?

(Mr Eccles) Yes. For example, where we are involved with small farmers we employ the lowest interest rates out of our range. If we were co-financing a subsidiary company partly owned by Lonrho, I think we might be tempted to charge the highest interest rates we would normally charge.

Lord Adrian

355. What links do you have with the UK scientific community, universities and Research Councils, when you want to tap expertise, or is it mostly in-house expertise?

(Mr Eccles) We do have a lot of links through institutions such as Silsoe College, Oxford Forestry Institute, tropical soils through ODNRI, tropical medicine and many many others.

Lord Shackleton

356. Do you make use of ODNRI?

(Mr Eccles) Yes. We have two soils people on our panel of staff, but we very much depend upon our own professional staff knowing where to go to find state-of-the-art information from other institutions. Pests come into our life a lot.

Chairman

357. Do you have to pay for the work done by ODNRI?

(Mr Eccles) I would need notice of that. There is a special arrangement with ODNRI, but I do not know what it is. We had better answer that later.¹

Lord Adrian

358. You referred earlier to recruiting from universities. What sort of people do you recruit? Is it people with degrees in all sorts of subjects, or do you

¹ Footnote by witness:

CDC and ODNRI

CDC uses ODNRI for soil sample and eucalyptus oil analysis and pays for this service at the going rate.

CDC has collaborated with ODNRI on a eucalyptus oil study at Shiselweni Forestry Co (SFC) (Swaziland). In this case, no payment was made because it was agreed ODNRI could publish the results. CDC could have elected to pay, in which case the results would have been confidential to SFC.

CDC seeks advice and information from ODNRI experts on an *ad hoc* basis as and when the need arises. No payment is made for this except where an ODNRI publication is supplied, in which case the publication is bought. Non-profit making organisations are able to obtain ODNRI publications at no charge. In the recent past, CDC has consulted ODNRI on such subjects as spice production and markets and seed processing and storage.

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued

[Lord Adrian Contd]

particularly go for people with development studies and that sort of thing?

(Mr Eccles) No, we particularly go, in the agricultural side, for people who have been to Wye, Reading and Bangor, for example.

359. Primarily agricultural?

(Mr Eccles) That is the agricultural resource.

360. Development economics or not?

(Mr Eccles) No. We do have a very limited number of economists who have come through that way, mainly agricultural economists, but I think probably only two or three.

(Mr Pierson) Probably more like five or six.

(Mr Eccles) Some of those five or six have gone on to become managers. The bulk of our financial stream are recruited having qualified as accountants post-university and probably had one or two years of experience with either an accounting firm or a merchant bank.

361. The bulk of your recruits are in the accounting side, are they?

(Mr Eccles) The largest number are in the financial stream, yes.

Chairman

362. We passed over this earlier. Could you tell us the number of scientifically and technically qualified staff that you employ?

(Mr Eccles) Of our pensionable staff, around 100 of which 75 are agriculturally based and 25 are engineering.

363. That is 100 out of 200?

(Mr Eccles) Probably 350 pensionable staff.

364. Rather more than a quarter are technically qualified?

(Mr Eccles) It might be larger than that and it might be 400 pensionable. However, that pensionable number, of course, includes all the administrative staff in London.

Lord Walston

365. Then do you not count accountants as your technical staff? You said that 75 per cent were agricultural and 25 per cent were engineering, leaving nothing for your accountants.

(Mr Eccles) Yes indeed, my Lord, the accountants we count as professional staff, but in the financial stream rather than in the technical streams.

366. How many of them do you have compared with your technical staff?

(Mr Eccles) I do not know that I have got the up-to-date number. My best estimate would be about 100. We have a very high proportion of middle and senior management staff to the total of our staff, because we are so scattered with 20 offices and 45 projects on which we have people engaged, plus a London office. So it is small teams in general, with on average high qualifications.

Chairman

367. So far as the financial monitoring is concerned, do you send your accountants out to the

projects and to companies—to BAL, for instance—to go through it with them?

(Mr Eccles) The primary responsibility for collecting the monitoring information from the projects is with the offices overseas; they are the collectors of information.

368. And they transmit it to you?

(Mr Eccles) Then there is a back-up system in London, and we have a very regular reporting system whereby we see what is happening.

Lord Shackleton

369. On the scientific and technical side, are there amongst the scientists and technologists particular professions represented? Do you have, for instance, field surveyors or geologists, or are they mainly agriculturalists or biologists?

(Mr Eccles) We have no geologists. When we are looking at a mining project we will bring in outside consultants. The qualifications of our agriculturalists vary widely. I wonder if the best thing to do would be to send you a short written paper on this.¹ We have irrigation and drainage engineers, but they are quite small teams. We have a wide range of disciplines, but basically fairly much hands-on within the enterprise, not, if I may say so, the sort of people who do the really academic work.

Lord Shackleton

370. On the other hand, with some of the new sciences, particularly remote sensing and geographic information, which are moving into what might be called the commercial field in that they are possibly financeable outside government, would you rely on consultants or would you be dealing with it, particularly on remote sensing which has become of increasing importance agriculturally?

(Mr Eccles) I think that in general we would be

¹ Footnote by witness:

Summary of Qualifications held by CDC Agriculturalists

(Number of Agriculturalists = 77; Some have More than One Qualification)

Qualification	No
PhD	2
MPhil	2
MSc	33
BSc	55
MA	6
BA	7
HND	2
HNC	1
MBA	1
Chartered Biologist	1
Batchelor Applied Science	1
Master Agricultural Science	1
Diploma in Agricultural Science	2
Diploma in Estate Management	1
Diploma in Advanced Farm Management	2
College Diploma in Agriculture	4
National Diploma in Agriculture	4
Scottish Diploma in Agriculture	1
Diploma in Agriculture	2
Diploma in Tropical Agriculture	6
Agricultural General Certificate	2
Certified Diploma in Accounting and Finance	3
Royal Horticultural Society Certificate	1

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued]

[Lord Shackleton *Contd*]

relying on specialist firms for that—for example, Huntings.

Baroness White

371. Does that apply also to something which has been brought to our attention by the American Association for the Advancement of Science? They have provided an interesting note about electronic networking in Africa and Sub-Saharan Africa, pointing out that for many people engaged in technological or other modern enterprises communications and information technology are becoming increasingly important. Apparently in co-operation with IBM they are trying to set up a network in Sub-Saharan Africa for such a purpose. Is that the kind of thing in which you might take an interest, or will you leave it to the Americans?

(*Mr Eccles*) We have as yet to crack networking within CDC, and I am personally not yet totally convinced that the money and time to be spent on it will be worth it. We have decided that our bases of data should be enterprise by enterprise and not try to be clever about cross-comparisons and so on. It may be that we are not seeing the golden future too clearly, but I think we would rather be excused from such a grand design, particularly in Africa.

Chairman

372. Are you reasonably satisfied that your monitoring processes are satisfactory, though? It is a very difficult problem to do this, I realise that, with all these small companies.

(*Mr Eccles*) I would have to disclaim satisfaction. We have a problem, as everybody does. It is a question of how much time and money you spend on it, when the project does not send you the information or sends it all upside down and, in the case of many of our projects—hopefully, not the ones we manage ourselves, but the others—the information is very late sometimes and it is not reliable. Then there is always a question of how much effort to put in. I think we have achieved a reasonable compromise. We did suffer some criticism in the quinquennial review done by the ODA and others, on the grounds that we were not getting it as right as we should, and we accepted that point. Nevertheless, with the qualification about how many people we are supposed to employ and how much money we are supposed to spend on this, which is the compromise.

373. It is a very difficult balance with a lot of small companies, is it not?

(*Mr Eccles*) Yes, and in 50 countries.

Earl of Ilchester

374. Does that criticism stem from the collection of information or from its dissemination? In fact, how do you disseminate your collected data?

(*Mr Eccles*) Our main way of disseminating it is through the Annual Report and Accounts which is given to the Minister and laid before Parliament every year.

375. So it is internal to the UK?

(*Mr Eccles*) In a formal sense, yes, but we participate in a great number of meetings.

376. International meetings?

(*Mr Eccles*) David Stephen and I last week were in Holland for the meeting of the European bilateral, where we exchange information and they have working groups which meet on specific issues at regular intervals.

377. So there is some cross-fertilisation of ideas?

(*Mr Eccles*) There is a great deal of that going on. Of course, the apogee of the whole effort is the World Bank's annual meeting which for two years takes place in Washington and then goes somewhere else. There is a whole raft of opportunities. We could be exchanging information all the time, without difficulty. There are plenty of fora in which to do that.

Chairman

378. Could we refer to a comment that the ODA have made that "the retirement bulge for experts with overseas experience is already seen as a problem for the implementation of aid projects and research". They also said that that problem "will be exacerbated by the decision of the research councils and universities ... to maintain activities on developing countries' problems only where they can be self-funding". Do you see that shift of policy as making your life more difficult?

(*Mr Eccles*) I think it is difficult for us to make a direct connection between that shift in policy and what is going to happen to us. We are very much smaller than the ODA in terms of numbers employed, and we cover a much narrower range of expertise. To date I think we have found, through our personnel policies, solutions to staffing. We have to keep thinking about it. We are spending more on training, and particularly with agricultural recruits we are having to support more of their expenses during their early years than we would have done historically. At the moment I remain optimistic. The other thing is that there are a lot of other people. For example, we have now trained a lot of Malaysians, and a lot of Malaysians have been trained by the Malaysian economy, nothing to do with CDC, and they are willing to travel and work in other countries. Therefore, I believe we will be able to find qualified managerial and technological resources.

Lord Walston

379. At one time you had an agricultural school in Swaziland. Do you still have that?

(*Mr Eccles*) We do. It is a management centre. David Stephen will be able to say what it does.

(*Mr Stephen*) The Mananga Agricultural Centre was set up in 1972 to train mainly African project managers. It is not an agricultural school teaching agriculture, but a school teaching the management of agricultural projects. That has evolved so that now we have established it as a locally registered, non-profit-making institution. It is indeed highly successful. It is receiving aid funds, now that it is non profit making; with its own local status, it is able to

26 April 1989]

Mr J ECCLES, Mr D STEPHEN and Mr D PIERSON

[Continued

[Lord Walston *Contd*]

receive funds from donor institutions and is, I think, doing a great deal in training managers of a fairly high calibre for agricultural projects in Africa. It does *not* train technicians, however; it is not training agriculturalists as such.

380. At the beginning of your evidence you explained your relationship with the ODA. Do you consider yourself completely autonomous and free from interference from ODA, or do you feel they are sometimes breathing down your neck and you are unable to do what you want to because they may cut off your funds?

(*Mr Eccles*) Under our Act of Parliament there is a clear chain of accountability. We are funded by public funds and all of our investments are made with public funds. It is right and proper and necessary to have a degree of transparency and a degree of accountability. In achieving that, the part played by the ODA is one with which we are comfortable. What we would not want, and what the ODA do not seek to do, is for them to influence our judgement and our board's judgement about which projects to invest in and how to deal with those investments once made. I think that the differentiation between accountability and long-term policy on the one hand and day-to-day management on the other has been well formulated as between the ODA and CDC, and I think that it works well.

Lord Thurlow

381. Could I go back to what you told us at the start about your financial position. You said that it might not be long before you would quite like to have a bit more money to take on more projects. Could you dot the i's a little on that? Is this something on the fairly immediate horizon, on which you would feel that more money could really be very well spent?

(*Mr Eccles*) Yes, I think it is in the near term rather than down the sort of medium horizon. We will have to rein back on the flow of projects under investigation which then become cleared in principle and then go up to our board for board approval. We will have to rein back on that as against what we *could* do, from about the end of this year, if we are unable to find additional resource—not dramatically, but significantly rein back.

Chairman

382. In that connection, can we go back to the point you made earlier about external funds other than ODA funds? Supposing you may have those funds available to you through the market, and you were able to use them with more freedom than you obviously can with government funds; would that be a major help to you?

(*Mr Eccles*) Yes, it would, my Lord Chairman. Of course, I am sure you will understand me when

I say that the largest single help would be an equity injection from the public purse, because we *are* funding equity investments unmatched with any equity subscription. It is by chance—or perhaps it is more than by chance—that our reserves more or less equal our equity book at cost. So we have built up an equity base over the years modestly, with the policy decisions that have been reached in recent years that the private sector is a good thing to invest in, that equity is a good form of investment, particularly in the Third World. The biggest constraint we have is equity resource. So whilst borrowing on the markets would be welcome, it does not actually address that particular dimension. As I said earlier, I think we would probably have to consider going a bit up-market in the total of our portfolio; we would have to balance it up-market a bit in order to be able to make a margin on lending market money.

383. That is very helpful. Are there any changes you would like to see to make your organisation more effective?

(*Mr Eccles*) The biggest move that I would like to achieve is really in industrial development, and it is also going back to a point you made about financial intermediaries. We have started one or two equity capital or venture capital funds. One is well off the ground in Papua New Guinea. That is very encouraging, because the biggest additional dimension we could get is a much greater involvement in medium-sized industrial ventures in the Third World where there is not a lot of equity capital available, not a lot of hands-on people close to the action who are willing to take risks, and a lot of the investment in that sector is made through commercial banks who, of course, are not naturally equity investors, and made through the local developments banks we talked about earlier a lot of them have run out of financial room for manoeuvre and their debt:equity ratios are not very satisfactory. So a much more direct endeavour in that regard would be very beneficial, I think. Added to that, what we would like to do is to put together a similar kind of technological and management capability as we have in agriculture—perhaps not in this case so much on our own as we have done it historically in agriculture, but using other facilities. The British Executive Service Overseas is one avenue we are exploring, and there are a number of others. However, many of the countries we are in are not going to make much progress only concentrating on agriculture. Whatever the disappointments have been, they do need an industrial base, and that is in many countries a very high priority for sustainable development.

Chairman] Thank you very much. I am afraid we have given you a fair grilling! We are most grateful to you for the way in which you have answered our questions. It has been a very interesting afternoon.

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MINUTES OF EVIDENCE
TAKEN BEFORE THE
SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY
(SUB-COMMITTEE I)

Wednesday 3 May 1989

THE ROYAL SOCIETY

Professor M A Epstein, Sir Ian McGregor and Mr S J Cox

*Ordered to be printed pursuant to the Order of The House of Lords of
29 November 1988*

LONDON

HER MAJESTY'S STATIONERY OFFICE

£3.80 net

WEDNESDAY 3 MAY 1989

Present:

Adrian, L.	Perry of Walton, L.
Butterworth, L.	Taylor of Blackburn, L.
Caldecote, V. (Chairman)	Thurlow, L.
Ilchester, E.	Walston, L.
Lloyd of Kilgerran, L.	White, B.

Memorandum by the Royal Society

In a letter of 30 January 1989 from the Clerk to Sub-Committee I of the House of Lords Select Committee on Science and Technology, the Society was invited to present evidence concerning the United Kingdom's scientific and technical aid to developing countries.

The Royal Society's Council established an *ad hoc* Group of Fellows under the Chairmanship of the Foreign Secretary, Professor M A Epstein, CBE, with the following members: Professor R E D Bishop, CBE, Sir Ian McGregor, CBE, Dr S E Moorbath, Sir Ralph Riley and Professor E C Zeeman, to prepare the Society's response. This was endorsed by Council on 13 April 1989.

This submission should be accepted as applying to aid only in the natural sciences including agriculture, medicine and mathematics and the scientific aspects of engineering and technology, areas in which the Royal Society's competence lies.

1. OUTLINE OF THE ROYAL SOCIETY'S RELATIONS WITH DEVELOPING COUNTRIES

- (a) The Society seeks the promotion and maintenance of excellence in science, technology and engineering in every country, including developing countries where, especially, excellence in these fields is a cornerstone of sustainable development. This it seeks to achieve by offering assistance to individual scientists, technologists and engineers as a basis for strengthening the infrastructure of qualified manpower and thereby underpinning the project work supported by agencies such as the Overseas Development Administration (ODA) in response to requests from developing countries.
- (b) The Society seeks to support scientific projects proposed by British scientists, but requiring an overseas site for their execution, through its Overseas Field Research Grants scheme and through specific grants to major scientific projects. The scientific community in a developing country benefits immediately from direct involvement in the research and in the longer term from the opportunity for future collaboration which the initial contact with the British scientific community provides.
- (c) The Society assists scientists, technologists and engineers from developing countries to undertake research and learn new techniques in the UK through funding schemes such as the Developing Countries Fellowships Programme (DCFP). Schemes of this type improve the science and engineering base in developing countries and establish collaborative links with UK for the future; 22 DCFP Fellowships were awarded in 1988-89 at a cost of £85,000.

The Society also enters into agreements with partner organizations overseas for the mutual benefit of the scientific communities in both countries. In 1988-89, under exchange agreements with 10 developing countries (excluding China) and at a cost of £170,000 more than 80 overseas scientists came to the UK and 74 UK scientists visited developing countries. In addition the Society supported 18 UK scientists to visit developing countries with which it had no formal agreement and four scientists from those countries undertook research in the UK with Society help and at a cost of £25,000.

For China, the Society runs a major fellowship scheme, The Royal Fellowship Programme, with funds from commerce, industry and Government (ODA), to enable up to 30 young Chinese scientists per annum to undertake research in British laboratories. It also has agreements with five partners in China, resulting in 80 visits of British scientists to China and a similar number of Chinese scientists to UK.

- (d) As the UK national academy of science, the Society adheres and pays annual subscriptions to the International Council of Scientific Unions (ICSU) and to most of its constituent unions and committees. The principal objective of ICSU is to encourage international scientific activity for the benefit of mankind. In 1966 it established the Committee on Science and Technology in Developing Countries (COSTED) with the overall objective of encouraging science and technology in developing countries. From 1989, the Society has raised its subscription to COSTED to \$5,000 per annum. The

3 May 1989]

[Continued

Society contributes £500 per annum and appoints a UK National Correspondent to the ICSU inter-union Commission on the Applications of Science to Agriculture, Forestry and Aquaculture (CASAFA), established to promote co-operation in research between institutions in developed and developing countries towards the resolution of problems of food production and processing in developing countries.

The International Biosciences Network (IBN) was established jointly by ICSU and UNESCO and has, as a prime objective, the development of human resources by training more biologists for the countries of the Third World and helping to build up their scientific infrastructure so that they are better able to undertake their own research not only in agriculture, food production, medicine and biotechnology, but also in underlying basic scientific disciplines. The Society wishes to be represented at, and to offer funding for, the support of African scientists attending projected IBN symposia on the role of biology in resolving the food crisis in Africa.

- (e) The Society dispenses an annual grant (in 1988, £112K) from the Overseas Development Administration (ODA) as subventions to ICSU and other international non-governmental scientific organizations to aid science in developing countries. This grant was given to the Society following the United Kingdom's withdrawal from UNESCO and is intended to compensate the international scientific bodies which suffered financially as a result. A list of recipient bodies is at Annex 1.

Terms of reference of the Society's programmes relating to 1 (a)–(d) are outlined in Annex 2 and a list of the Society's agreement partners in the Third World is at Annex 3.

2. RESPONSES TO THE SPECIFIC ISSUES RAISED

In response to the points contained in the letter of invitation to give evidence from the Clerk to the Sub-Committee, dated 30 January 1989, the *ad hoc* Group would comment as follows:

Point 1: The objectives of the United Kingdom's scientific and technical aid to developing countries, and how effectively those objectives are met.

Definition of the objective of the United Kingdom's scientific aid is a matter for Government, not for the Royal Society.

Point 2: How priorities are identified and projects executed and evaluated.

The Society's own priorities are determined according to an evaluation of the scientific excellence of a research proposal, its relevance to a specified country or geographical region and the standing of the scientist(s) involved.

Point 3: Whether there are any discernible trends in United Kingdom policy and, if so, whether they are desirable.

In recent years the Society has placed emphasis on the exchange programmes with Japan, USSR and China. It is recognised that these priorities are set partly by current opening up of scientific opportunities and partly by politico-economic considerations. It also places importance on scientific collaboration with Western Europe.

The Society has a large exchange programme with the Indian National Science Academy (INSA), reflecting the size and strength of Indian science and the close contact between the scientists of the two countries. The Society devotes £80,000 to this programme and its partner INSA devotes a similar sum, enabling between 20 and 25 scientists to travel in each direction each year. Its agreement with the Argentinian Research Council (CONICET) currently provides the only formal opportunity for contact between British and Argentinian scientists. This is the Society's largest programme in Latin America and the Society and CONICET devote about £30,000 each per annum, which in 1988–89 supported six Argentinian scientists to undertake research in the UK and 10 British scientists to visit Argentina.

Point 4: How well aid is adapted to the needs of the recipient countries.

Assistance enabling a scientist from a developing country to work in the UK or a British scientist to work in a developing country leads to individual and institutional contacts which frequently result in important future scientific and commercial collaboration between the two countries.

Point 5: The respective merits of bilateral and multilateral funding of scientific and technical aid.

The Society has bilateral agreements with partner organizations in eleven developing countries providing opportunities for visits by scientists between the UK and each of them to undertake research and make or renew contacts. Funding for these visits is provided jointly by the Society and its partners overseas and each partner is expected to agree the visit; thus helping to ensure that the co-operation benefits the scientists of both countries. Direct contact between the two partners under these simple agreements means that decisions about exchanges can be reached quickly.

Science does not however respect international borders and therefore calls for multilateral support.

3 May 1989]

[Continued

Developing countries often face acute problems which for their resolution require concerted international funding. Notable examples are scientific advice and training in the management of tropical rain forests and their resources and in measures to combat natural hazards such as volcanic eruptions, earthquakes and flooding. Multilateral funding is able to facilitate the movement of scientists between developing countries, so spreading relevant expertise and probably ensuring a wider dissemination of research findings than bilateral aid which may be considered to be more tied to national political objectives. The Society's subventions to international non-governmental organizations in support of science in developing countries using its ODA grant is intended to strengthen the ability of these organizations to respond to common scientific needs of the developing world.

3. RECOMMENDATIONS

In the light of the foregoing, the following recommendations are put to Sub-Committee I for their consideration:

- (a) Government should consider asking the Society to provide expertise in both the selection and the review of its own overseas projects with a science or engineering content.
- (b) Government should consider the appointment of science attaches to more of its embassies and high commissions in developing countries.
- (c) provision should be made in Government-funded science aid projects for the supply in subsequent years of replacement parts for scientific and other equipment, as well as training in the maintenance of that equipment.
- (d) Government should offer funding for scientists from developing countries to participate in international scientific meetings in the UK and for UK scientists to deliver lectures while visiting developing countries.
- (e) consideration should be given to the funding of visiting professorships, lectureships and research fellowships to universities in developing countries for UK scientists on appointments of up to five years.
- (f) financial support should be offered for the establishment of, or assistance for, academies of science in developing countries and regions so that they may provide *foci* for scientific development in those areas.
- (g) Government should increase multilateral support for international non-governmental scientific organizations to enable them to support science and scientists in developing countries.
- (h) Government should consider providing enhanced support in the form of bilateral aid for scientists from developing countries, particularly younger scientists, to undertake both fundamental and applied research on topics which contribute to a better understanding of the science, technology or engineering which underpin development, or which contribute to strengthening the science base in their own country.
- (i) more financial assistance should be provided by Government for the payment of tuition fees for overseas students from developing countries studying in the UK. Such an increase would be likely to encourage greater numbers of students to come to the UK and ensure that greater benefit would accrue to the UK in terms of future collaboration when such students return home and in due course occupy senior positions of influence.

18 April 1989

ANNEX 1

INTERNATIONAL NON-GOVERNMENTAL ORGANIZATIONS RECEIVING SUBVENTIONS FROM THE ODA GRANT TO THE SOCIETY

International Union of Geological Sciences
 International Council of Scientific Unions
 International Centre for Theoretical Physics
 Scientific Committee on Oceanic Research
 Commission for Geological Map of the World
 International Brain Research Organization
 International Cell Research Organization
 International Union of Microbiological Sciences
 International Centre for Pure and Applied Mathematics
 World Federation of Engineering Organizations
 International Mathematical Union
 International Union of Pure and Applied Chemistry

3 May 1989]

[Continued

ANNEX 2

The following definitions, terms of reference and descriptions may be found useful:

Science in Developing Countries Committee (SDCC)

Established by the Society:

- (a) to keep under review the Society's role in the promotion of science and engineering in developing countries and in the fostering of links between the UK scientific community and its counterparts in the Third World, including provision for exchange visits;
- (b) to administer any study visit/fellowship programmes with developing countries;
- (c) to report to Council.

Developing Countries Fellowship Programme (DCFP)

Enable scientists of proven ability working in developing countries to pursue research, learn new techniques or undertake other forms of study in the natural and applied sciences by working with colleagues in the United Kingdom or a developing country other than that of the applicant. The SDCC itself, or *ad hoc* groups formed from its membership, considers applications received under this scheme.

Royal Fellowships (China)

1. The Royal Fellowships were presented to the People's Republic of China by Her Majesty The Queen during Her State Visit to China in October 1986 in recognition of the importance which both countries attach to scientific co-operation. The purpose of these Royal Fellowships is to enable key Chinese scientists to undertake periods of research in British laboratories in collaboration with British colleagues.
2. The Rt Hon the Lord Rhodes, KG, DFC, was instrumental in initiating the programme and raising much of the finance. There are about 30 one-year awards offered each year for three years from January 1987 and funded by a three-year grant from the Overseas Development Administration of the Foreign and Commonwealth Office and by generous donations from 21 companies, and from members of the Manchester Chinese community.
3. The Royal Society, of which Her Majesty is Patron, administers the scheme in collaboration with its main scientific agreement partners, the Chinese Academy of Sciences and the China Association for Science and Technology.
4. The Society is currently seeking funds from ODA and from the commercial sponsors to continue the programme into 1990 and beyond.

Overseas Field Research Grants

Are provided to British citizens ordinarily resident in the UK to promote and support field research in science overseas, including work at sea, and to assist scientific expeditions and collections. In 1988, 48 applications were received of which 23 were for research in developing countries. Twenty-four were funded, of which 11 were for research in developing countries. In 1989, the corresponding figures were 69, 33, 26 and 13.

South East Asian Rain Forest Research

Under memoranda of understanding and in collaboration with three Malaysian institutions, the Society's South East Asian Rain Forest Research Committee guides the development of the Danum Valley Rain Forest Research Programme and the involvement of UK scientists in it, and stimulates and plans UK involvement in comparative studies concerned with the dynamic of tropical rain forests and the effects of disturbance on them in South East Asia and elsewhere. The Danum Valley Field Centre is supported by a direct grant of £12K per annum. In 1987, the Society funded the work of 23 scientists there and two SE Asian biologists visited the UK under the programme.

International Centre of Insect Physiology and Ecology (ICIPE)

Based in Nairobi. Under an agreement between the Society and the ICIPE, one fellowship in each direction between the UK and Kenya is awarded per year.

Pacific Science Association (PSA)

Objectives include the initiation and promotion of co-operation in the study of scientific problems relating to the Pacific region, more particularly those affecting the prosperity and well-being of Pacific peoples. The Society is an institutional member and sends a representative to the four-yearly congresses.

10 May 1989]

[Continued

ANNEX 3

THE ROYAL SOCIETY'S AGREEMENT PARTNERS IN AFRICA, ASIA AND LATIN AMERICA

ARGENTINA.—Consejo Nacional de Investigaciones Cientificas y Tecnicas (CONICET), Buenos Aires, Argentina.

BRAZIL.—Conselho Nacional de Desenvolvimento Cientifico e Tecnológico (CNPq), Brasilia, Brazil.

CHILE.—Comission Nacional de Investigacion Cientifica y Tecnologica de Chile (CONICYT), Santiago, Chile.

CHINA.—Chinese Academy of Sciences (CAS), Chinese Association for Science and Technology (CAST), Chinese Academy of Medical Sciences (CAMS), National Science Foundation of China (NSFC), Ministry of Geology, Beijing, China.

EGYPT.—Academy of Scientific Research and Technology, Cairo, Egypt.

INDIA.—Indian National Science Academy (INSA), New Delhi, India.

KOREA.—Korea Science and Engineering Foundation (KOSEF), Seoul, Korea.

MEXICO.—Academia de la Investigacion Cientifica de Mexico (Mexican Academy of Sciences), Mexico City.

PAKISTAN.—Pakistan Science Foundation (PSF), Islamabad, Pakistan.

PHILIPPINES.—National Academy of Science and Technology of the Philippines, NSTA, Manila, The Philippines.

VENEZUELA.—Consejo Nacional de Investigaciones Cientificas y Tecnologicas (CONICET), Caracas, Venezuela.

Examination of witnesses

Professor M A EPSTEIN, Foreign Secretary and Vice President, Sir IAN MCGREGOR, Chairman, Developing Countries Committee, and Mr S J Cox, Assistant Secretary (International Affairs) The Royal Society, called in and examined.

Chairman

384. Professor Epstein, thank you for coming along this afternoon with your colleagues. Would you like to introduce your colleagues first?

(*Professor Epstein*) Thank you, my Lord Chairman. Professor Sir Ian McGregor, Chairman of our Developing Countries Committee, is on my left and Mr Stephen Cox from our Secretariat is on my right.

385. Would you like to elaborate at all on your written paper or may we proceed with our questions, and it would be helpful if we could come back at the end to your specific recommendations?

(*Professor Epstein*) Yes, we should like that.

Lord Taylor

386. What changes do you anticipate in the S&T needs of developing countries in future years?

(*Professor Epstein*) There are the obvious things like climate change from the greenhouse effect, which will affect rain forest management. One will need alternative energy sources, genetic engineering for the development of crops and things of that kind. Perhaps Sir Ian would like to take that one on board.

(*Sir Ian McGregor*) At a lower level, many of the developing countries are coming to the end of one phase, a phase when they have been particularly interested in training undergraduates in science, mainly to maintain their essential services. That phase is about to pass and we will move into the

second phase where the principal aims will be the training of doctoral and post-doctoral scientists when they really begin to consider research rather than services on a much broader basis. To my mind—and I must say this is a personal view—that is one of the principal changes. The second one will be the improvement on the engineering side, in the maintenance of complicated equipment, which will become increasingly necessary for research in the developing countries. Many countries at the present time have no facilities for this and this stultifies a great deal of their scientific effort. That will increase immensely in years to come. That is a natural evolution in addition to what Professor Epstein has said of certain essential research changes like the greenhouse effect which will involve a great deal of research.

Lord Butterworth

387. When you said changes in training from undergraduate to post-graduate, what you meant was that the undergraduates would still be trained but would be trained in the developing countries themselves. That would be the stockpile from which the post-graduates would come and it would be the post-graduates who would be more trained in developed countries.

(*Sir Ian McGregor*) Yes, that is exactly what I meant to imply. There has been a need to develop the essential services. The construction and design of universities has been to produce undergraduates

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued

[Lord Butterworth *Contd*]

qualified in a subject; that has been the primary orientation to the present time. Now it will go a stage further as these people are becoming more available and more of them will be interested in advancing science in their own countries at a doctoral and post-doctoral level.

388. How does this apply in the medical field?

(*Sir Ian McGregor*) That is one of the areas in particular that it will apply to. Once there is a sufficiency of individuals to run the essential medical services of a country the next stage will be in specialised training of these individuals for research investigations of the specific problems of these countries themselves.

Lord Perry of Walton

389. That brings up the question of how the training at the pre-university level is going to be done, of the technicians rather than the technologists.

(*Professor Epstein*) There is a point about the maintenance of equipment which we will probably come to when discussing our recommendations. When aid agencies provide equipment it is extremely important at this stage that there is some financial input to maintain it and to provide for spare parts. Very frequently sophisticated equipment ends up wasted in a developing country for want of a washer or something.

390. I am very well aware of that. What I was getting at was the training of the personnel. Is that something that ought to be done for example in this country or in the developing countries themselves?

(*Sir Ian McGregor*) Could I answer that in the same way as before. I think to the present time the training has been essentially considered in the West, in the developed countries, but more and more there is now a move to start training technologists themselves in the developing world. This can be seen in West Africa in certain spheres but this is a tendency which will increase more and more too.

Lord Walston

391. Do you see a danger in doctoral training, post-graduate training in developed countries, that the people who go from the developing countries to the more sophisticated countries will get habits and ideas above the capabilities of their own laboratories when they get back? Therefore they will not be able to do the proper research or develop their potential, or they will migrate to a developed country where they can do this?

(*Professor Epstein*) That is one of the things which the Royal Society with its exchange programmes is extremely careful about when making selections for the developing country fellowship scheme which brings people from the Third World to laboratories in the UK. Apart from consideration of the excellence of the science, there is also the relevance of what the visitor wishes to do. It is extremely important that they should not get involved in something highly sophisticated which when they go back has no base for continuing at home. We do make a very considerable effort to monitor that.

Lord Butterworth

392. There are some people who greatly favour what is sometimes called a "split PhD" with supervisors in the developing country and over here and the PhD eventually being awarded back home in the developing country. Have you any views about that?

(*Professor Epstein*) In this country it is only possible with some universities. One of the things that the Society is quite keen on is that there should be provision to allow UK academic staff to go to developing country universities on secondment or leave for three to five-year periods to help build up the base to make that kind of thing possible. There is not actually financial provision for that and we think it important that there should be.

393. We were hearing that the British Council do quite a lot of this in their different link schemes.

(*Professor Epstein*) I was not aware that they provide for several years stay.

Chairman

394. Could we pick up a point you make in your recommendations. In (f) you recommend that there should be more assistance for the setting up of academies of science in developing countries. Do you regard that as a major point? It seems to some of us a little sophisticated and spending a lot of money on that when money might be better spent in other ways.

(*Professor Epstein*) It is not so much that one wants to put together a large edifice, it is simply that in some of these countries there is no focus for science and technology. For instance, I have just come back from Malaysia and we have a partnership agreement there. It is with the Malaysian Association for Science. However, it is not effective because there is nothing that brings together all the different disciplines. There is no focus. In that sense, if one can build up a focus it can help with exchanges and act as a facilitating body.

395. Would that apply also to Africa?

(*Professor Epstein*) Yes, I think that it would.

Lord Thurlow

396. How well is the United Kingdom scientific community able to respond to the demands of developing countries? Do you see any trends here? What actions might be taken now to improve capability in this respect?

(*Professor Epstein*) As far as we are concerned, our experience is that there is a considerable body of individual scientists in the older age groups in this country who have experience of developing countries, who are sympathetic to the requirements of developing countries and who welcome visitors and try to help whenever they can. But that is an ageing group and the younger scientists, who have not had such practical experience in the past, are not really so conscious of the needs. Sir Ian might like to add to this because he has quite strong feelings I know.

(*Sir Ian McGregor*) Yes, I would. I believe that for many years Great Britain has been pre-eminent

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued]

[Lord Thurlow *Contd*]

in the disciplines and knowledge that it had of problems in developing countries. I think this is largely because of our colonial background, but we have had many distinguished individuals in very prominent positions. In fact if you look at some of the international organisations like the World Health Organisation most of the key positions used to be filled by British or Commonwealth individuals. That is passing. The body of experience is decaying progressively. In the very near future this will fade entirely unless there is something which takes its place. Whether this is a deliberate policy which enables scientists in this country to build up expertise in overseas developing areas in the same sort of way perhaps as France may run its very extensive overseas programmes of scientific assistance and as perhaps the United States is doing increasingly too remains to be decided. This is a very real problem. You are changing from a time when you have a super-abundance of scientists of great distinction in scientific problems in the developing world and this is becoming a much scarcer commodity now.

(*Professor Epstein*) One sees this very strikingly in tropical medicine for instance.

Lord Adrian

397. Also in animal disease and epidemics abroad.

(*Sir Ian McGregor*) And pest control in crops.

(*Professor Epstein*) One sees this in tropical medicine particularly where UK was pre-eminent. The expertise in this field is shrinking and dwindling away every year. It has been said that if the Falklands campaign had been mounted in a warm country and not down in Antarctica we would have been in real trouble from the medical point of view.

Lord Thurlow

398. Does that imply that these younger people who have not had personal experience should fill executive operational posts in developing countries? I take it that a lot of the experience that was got by the older people in the past was because they were in the colonial medical service or whatever and actually with responsibility, whereas now, naturally enough, the responsibilities are generally exercised by locals and it is rather difficult to put a cuckoo in. Does that present a problem at all?

(*Sir Ian McGregor*) That is a very distinct problem. Certainly no developing country wishes to see an expatriate come in and become responsible in total for the operation of any particular investigational campaign. One would have to look at other aspects and perhaps it is by seconding teachers into universities and positions like this, facilitating these appointments, choosing individuals carefully and subsidising this aspect so that you can maintain your contacts with, and a fair amount of influence on, the indigenous individuals who are running the campaigns you speak of.

Lord Perry of Walton

399. Is there any way in which encouragement to VSO might assist in this?

(*Sir Ian McGregor*) The introduction of the volunteer side is very useful for capturing the imagination of the future scientist or the future teacher. Beyond that little more; if I may again express a personal opinion. That is the principal point of getting early experience in an environment that is totally different from one's own environment.

Chairman

400. Is it not a fact that VSO is moving very much away from people between school and university to people with degrees or even with PhD degrees?

(*Sir Ian McGregor*) That is the second stage and that is a good stage too. This is all part of a process, if you can encourage that stage of development. On the medical side for example, undergraduates are allowed to go to developing countries on elective periods and these elective periods very often have shaped the future career of the people who took them up.

Lord Perry of Walton

401. Having spent two years in the Colonial Service in Nigeria I do not really believe that an elective period as an undergraduate in a Nigerian university would do the same as a VSO spell out in the bush.

(*Sir Ian McGregor*) It depends of course. My electives spent their time in the bush with me so that they did see a lot of problems. The point was that they saw a different standard of medicine, a different series of problems in medicine from those they had encountered in the United Kingdom training.

Lord Walston

402. We all know that VSO now has moved almost entirely to post-graduates. Would you not agree that if young scientists can go out even for a relatively short time to the Third World, some of them—not all—will develop a love for that country and an involvement in that country and when they come home and establish themselves and then get applications from the Third World they will have the sympathy and the understanding to some extent of that country or similar countries that at the moment is provided by the ex-colonial officers. So it would be a way of replacing the former colonial past by encouraging still more of the recently graduated scientists to go overseas, whether in the elective period for medical students or for scientists of any kind. They will in 10 or 15 years time when they become heads of departments or heads of research organisations have a sympathy and understanding for the Third World.

(*Professor Epstein*) I absolutely agree. We would welcome encouragement for that enormously.

(*Mr Cox*) As a former VSO I do entirely agree that the process of being a VSO is something that stays with you for the rest of your life and that also makes you much more sympathetic when you are back in this country. The point that we are trying to make is that that is no substitute for sending overseas highly specialised well trained expert British academics and scientists, to provide or to support the training infrastructure in the country concerned. The

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued

[Lord Walston *Contd*]

process of being a VSO certainly has enormous benefits for the individual who undertakes this and benefits for the country. But at the scientific level that we are talking about one would need somebody who was more experienced, who had a great deal more to offer that country as well as indeed to benefit from it.

Lord Adrian

403. Do you find any trend in terms of the funding bodies' willingness or unwillingness to fund research on problems which are essentially exotic to this country? I am thinking of exotic animal diseases and indeed tropical medicine as a whole. We have been very much in the fore of much of the work in this field. Is the support for that general field holding up or is it limited?

(*Professor Epstein*) There is support for it. As I am sure you know, the Medical Research Council has its tropical medicine research board and funds, with assistance from ODA, a great deal of work both in this country and overseas in tropical medicine. When I was in Malaysia last week I went to look at the Danum Valley Rain Forest Research Centre which is partly funded by the Royal Society and was agreeably surprised to find that many of the projects being undertaken there by scientists from this country were funded by the Natural Environment Research Council. Money does go abroad for that kind of thing and I believe AFRC is also involved with crop development for developing countries.

404. There has been a degree of uncertainty about support for exotic animal diseases, though that is now relatively resolved.

(*Sir Ian McGregor*) One other organisation that should be mentioned with a very particular interest is the Wellcome Trust and that solely because Sir Henry Wellcome had a very particular interest in tropical problems. If the Wellcome Trust did not pick up the funding of many projects we would be in a very much worse position than we are.

Lord Lloyd of Kilgerran] I am very closely concerned with the worldwide demand of developing countries who are asking for assistance to exploit the inventions arising from the aid given by your renowned society and others because of the difficulties they are experiencing when trying to exploit anything arising out of your research because of the monopoly rights existing in developed countries, particularly the UK. It may be that this is outside the scope of—

Chairman] It is very relevant. There is not much point giving aid if it is not effective economically.

Lord Lloyd of Kilgerran] There has been for years an organisation called WIPO. It sounds like something you use in the kitchen but it is the World Intellectual Property Organisation. It is very concerned with dealing with these demands of developing countries and not making much headway at the present time.

Chairman

405. Do you have any experience of this?
(*Professor Epstein*) Not at all. This is to do with patent rights, is that right?

Lord Lloyd of Kilgerran

406. Intellectual property rights.
(*Mr Cox*) The Society's policy on IPR is that we really very strongly uphold the principle of the free publication and free circulation of scientific results and the earliest publication of those results so that they are freely available to scientists throughout the world. The problem I suspect does not usually occur at the fundamental scientific level at which we often talk. The problem in fact operates at the applied technology end of the spectrum. I do not know whether Britain is worse than other countries: I suspect we are no worse than other countries but we are certainly one of the countries where companies and organisations are clearly very keen to protect a monopoly which they have.

Lord Adrian

407. Are not the Research Councils also very keen to protect the rights in work that they have funded? I know of instances where publication has been held up pending the establishment of patent rights on really quite fundamental work funded by the Research Councils.

(*Mr Cox*) Yes.

Lord Lloyd of Kilgerran

408. Would I be allowed to make one supplementary observation in view of what Mr Cox has said? I believe Mr Cox said that the Royal Society is in favour of free publication. He realises that free publication destroys commercial rights. Is that the policy of the Royal Society?

(*Mr Cox*) In terms of fundamental research, the dissemination of the fundamental research through the normal academic publication mechanism, yes.

Chairman

409. That is after all the policy of most universities is it not?

(*Mr Cox*) Most universities.

(*Professor Epstein*) But this is at a level earlier than that to which Lord Lloyd is referring. This is at the very fundamental level.

Chairman] Thank you very much for raising an important point.

Lord Perry of Walton

410. The second half of my question was whether anything can be done to improve our capability to respond to the demands of developing countries. Do you believe that capability to respond would be improved if the rather miserable levels of payment to scientists and educationists, compared to that paid to architects and construction workers, were to be improved?

(*Professor Epstein*) That is a whole new

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued]

[Lord Perry of Walton *Contd*]

ballgame. What I would say is that it is not so much individual remuneration that counts, it is funding to enable people to go abroad and take their expertise there within some kind of framework which allows them to come back again. That would help an awful lot.

411. My experience is that the level of personal remuneration does have a major effect.

(*Professor Epstein*) This is not perhaps the place to discuss academic salaries!

Baroness White

412. May I try to slot in here something which has been in my mind since we received a paper from the Committee of Vice Chancellors and Principals. They suggest "A small unit to act as a focus for training in science management for developing countries and to act as a clearing house for information". This matter of patent rights would come into the sphere of science management? They refer in their note to the British Council, ODA and the Commonwealth Science Council. They do not make any mention at all of the Royal Society which I found rather startling.

(*Professor Epstein*) Management is really outside the remit of our interests. We are really devoted strictly to basic science in its widest terminology, that is including the scientific aspects of medicine and engineering and agriculture.

413. So you would not be concerned that somebody else unspecified should set up a small unit to act as a focus for training in science management?

(*Professor Epstein*) I am sure there are many Fellows who could assist with expertise but I would think that the Society as such would not be in a position to help.

414. Can you suggest who should be?

(*Professor Epstein*) I would have thought the Research Councils have an enormous amount of experience in that area and that people could come as visiting fellows or whatever to learn on attachment in the Research Council head offices.

Lord Walston

415. I do not know whether I am alone in this but I am not at all clear in my own mind as to what science management is. I think I know in general terms what scientific research is. I know about allocation of resources. But science management is something which passes me by. Could you explain what you understand by science management?

(*Professor Epstein*) We are now moving into a very hotly argued area. There is a tendency at the present time to think that the most advantageous way for organising research is through directed research and there are a number of initiatives going on in this direction at the present time. I have to say that it is the view of the Royal Society, rather strongly held, that the important way to get innovation and new ideas off the ground is not through directed research but by responsive mode funding, having a bag of money within the Research Councils available to fund people's new ideas that come up from below.

This is something that is being argued all the time. This is our view, we have been banging away at it in every possible forum and I am happy to have the opportunity to say it again. I really am not very enthusiastic about management of research.

Chairman

416. That would be at the basic end of the research spectrum.

(*Professor Epstein*) Sure, absolutely.

417. At the more applied end you would not presumably object to having an objective for research but you would not want to tie the research worker too closely to how he reached the objective.

(*Professor Epstein*) No.

418. Is that correct?

(*Professor Epstein*) Exactly; absolutely correct.

Lord Walston

419. Witnesses from the Commonwealth Science Council spoke of the need to train developing country nationals for the management of science. From what you have said, while you have not said it is not important I think you have suggested that the Royal Society could not contribute a great deal.

(*Professor Epstein*) That is right. We are concerned with assisting the practice of science rather than with its management.

Lord Butterworth

420. You might take India as an exceptional place where there are so many universities and so many good institutes and there may be problems for the management of science. It is very difficult to think of other places in the developing world to which that would apply. You mentioned Malaysia twice. There are four or five universities in Malaysia. The science community there is not big enough to require management of science and it would surely have a very old-fashioned look in say Tanzania where there is one university or even in Ghana where there are three. India is the only place I can think of where maybe the training of managers of science could have some place.

(*Professor Epstein*) I just do not think the Society would have a view on this really. It is outside our sphere of activity.

Chairman

421. Would you agree that one aspect of the management of science is the allocation of priorities between different scientific disciplines and the resources available for different disciplines? Would that not be part of it?

(*Professor Epstein*) Yes. That is beginning to go into the political area is it not? That is making political decisions and judgments.

Chairman] That is a very important and interesting point.

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued]

Baroness White

422. In determining the relevance of a research proposal to a particular country what criteria do you consider?

(*Sir Ian McGregor*) First and foremostly we look very closely at the proposal to decide whether, in the opinion of the members of the Committee the proposal is in fact a feasible research proposal. Feasibility in the context of the country is the first important thing to be considered. The second is whether the standard of the proposal is adequate. Is the excellence of the research good enough to merit funding. Thirdly, one would look, as you have already said, at what is known of the priorities of problems in the country, and decide where the proposal ranks in that particular range so far as we are able to judge. Finally, if everything is in its favour, is there an infrastructure? If it requires an infrastructure, is there an adequate basis and the existence of facilities that will carry this project through? If the answer is favourable in all of these instances, we would be prepared to go along with that. That is essentially what we look at.

Chairman] A very clear answer, thank you very much.

Lord Butterworth

423. What efforts are being made by the Society to increase contacts with and support of scientists in Africa?

(*Professor Epstein*) The best we can do is through the developing countries fellowship scheme where we bring people from developing countries to work in the UK, and through the various exchange programmes. These are restricted entirely by the shortage of funding. The developing countries fellowship scheme could spend considerably more than it does and we could have a bigger exchange programme with Africa. You are asking specifically about Africa and it is restricted by funding. We have not got Africa at the top of our priorities list for exchanges.

424. In your memorandum you say that the Society wishes to support the International Biosciences Network and that you are sympathetic to the role of biology in resolving the food crisis in Africa. Would you like to expand upon this?

(*Professor Epstein*) We do not really put an awful lot of money into that; the sums are rather small. It is again a question of finance. Of course we are happy to train biologists from these countries but there is a limited number that we can bring.

425. Do you think that biotechnology has a contribution to make in Africa, particularly having regard to the food crisis?

(*Professor Epstein*) Certainly, yes: soil, hydrology, new types of seed crops and food grains. Yes, indeed.

426. I suppose the dramatic thing is that if you look at India there has been a green revolution, thanks to the scientists. Can the Royal Society

explain why there has been no green revolution in Africa?

(*Sir Ian McGregor*) It is certainly not for lack of trying. There have been so many projects, like the groundnut scheme in East Africa and the egg production scheme in the Gambia.

Lord Adrian

427. Could I ask whether our scientific relations with Africa have been in any way influenced by Her Majesty's Government's policy to UNESCO? I ask that question because I find it rather surprising in a way that UNESCO figures not at all in the papers we have before us at the moment. I wondered whether that was because of Her Majesty's Government's recent policies towards UNESCO and whether I could persuade you to say anything about that. Perhaps I cannot.

(*Professor Epstein*) Following this country's withdrawal from UNESCO sums of money were set aside by ODA and channelled through us to take on board support for some of the international programmes which formerly were funded by UK through UNESCO. We indeed do just that but we do not have any formal contacts with UNESCO at all.

428. Do you think that your programmes funded with that money are as effective or more effective or less effective than they would have been had we remained in UNESCO? Is the fact that we have withdrawn from UNESCO actually impeding the ways in which we can fund projects in Africa?

(*Professor Epstein*) No, I would not have thought so. Mind you, the new plans for UNESCO, if they are implemented by Professor Mayor, look extremely hopeful. What he has in mind is all good, but whether he can carry it out only time will tell.

(*Mr Cox*) The Society's focus is towards supporting the non-governmental organisations and the money that we have got from Her Majesty's Government's UNESCO monies is going into non-governmental organisations. The reference to biosciences and Africa which came up a little earlier from Lord Butterworth is one of these initiatives of creating a series of networks of scientists within Africa who can communicate on common problems, common issues in which they can get together and talk about their difficulties. We are putting extremely small sums of money, but nevertheless we consider them very important sums of money, into this sort of initiative. The sums of money we are talking about are often little more than £1,000.

429. Is the Biosciences Network sponsored by ICSU?

(*Mr Cox*) It is the ICSU system that we are using for this.

Lord Thurlow

430. I am afraid I am very ignorant about the general question of the funding of the Royal Society. Could you tell us something about the trend? Has it been more or less level funding lately or is the fund up or down or what?

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued]

[Lord Thurlow *Contd*]

(*Professor Epstein*) We have our own endowment monies which we have accumulated over the centuries and those we are free to spend for our own purposes as we wish. In addition to that, we are funded from the Science Vote through the Advisory Board for the Research Councils, competing there with the various Research Councils. The money that comes through that route is earmarked to carry various tasks which the Government would like to see done by the Royal Society. That component of our income is constantly increasing because we are constantly being asked to carry out new tasks. Funds for a wide range of our international activities come from the Science Vote to carry out these international relations for Government. Things like the university research fellowship scheme designed to salvage the very best of British scientists across the board and give them some stability in these difficult times, up to 10 years. We are carrying that out for the Government. They are wishing to increase the numbers to 200 in post at any one time so that component of the funding goes up. They have harkened to our pleas for responsive mode funding, that is funds to respond to proposals from research workers at the bench and they have recently given us an extra £2 million—not very much, but something—for a small grant scheme for which people can apply to the Society. It is a very cost-effective and cheap way of administering research funds. I have to say there is some concern amongst our officers at the constantly increasing percentage of our total income which is represented by Government funds. At what stage do you cease to be independent? I think we are still independent. However, the grant in aid is going up all the time.

Lord Walston

431. Presumably you do have other partners in providing your money? For instance, in paragraph 1(c) you mention that you have given 22 Fellowships to the Developing Countries Fellowships Programme at a cost of £85,000. That is approximately £4,000 per Fellow which is not a very great deal, not sufficient to support them here. That must be in collaboration with other bodies.

(*Professor Epstein*) No. Their fares are supposed to be paid by the sending institution but otherwise not. We used to have funding from the Nuffield Foundation and that has recently been stopped. So the answer is no, this is not in partnership with any body.

432. So it is just making it a little more comfortable for somebody that the Third World government is sending over here.

(*Professor Epstein*) No, no, no. Absolutely not. They come because they have such a fellowship. Their institution at home pays only the fares. We pay all the subsistence in this country.

(*Mr Cox*) They are not necessarily all here for one academic year; they may be here for six months or seven months or whatever, so you cannot divide in quite that way.

Lord Perry of Walton

433. I was going to ask what the average duration was.

(*Mr Cox*) The average is about seven months.

434. For £4,000. Is it not quite ridiculous?

(*Professor Epstein*) Yes.

(*Mr Cox*) Our funding for the developing world is very small indeed. We get our money from DES on the advice of the ABRC from the Science Vote.

435. Is that money tied to an award?

(*Mr Cox*) Very little of that money can be used for developing countries.

Chairman

436. Let us be quite clear about this. These people come here from developing countries for periods of maybe six or seven months and for that period they are paid about £4,000—a rate of about £8,000 per annum. Is that adequate for them to live here? How do they live on that?

(*Professor Epstein*) Badly; but what does a new post-doc get in this country? Scientists and academics are extremely badly paid.

437. Is that enough to attract them?

(*Professor Epstein*) Yes.

(*Sir Ian McGregor*) Bearing in mind they come from very poor countries with very low standards, yes.

438. But the standard of living here is very much more expensive.

(*Sir Ian McGregor*) Yes, but it is probably better than they are accustomed to.

Lord Perry of Walton

439. I did in fact add up what figures were in the document you sent. It seemed to me that the total amount you were spending on aid to overseas students, whether it comes from the Government or not, is not more than £300,000, excluding the Chinese scheme.

(*Professor Epstein*) Yes, that is right.

440. Is this not pitifully inadequate?

(*Professor Epstein*) Yes.

(*Mr Cox*) We would be the first to agree.

(*Professor Epstein*) But how do we increase it?

441. Let us get it on the record that you think it is pitifully inadequate.

(*Professor Epstein*) Pitiful.

Chairman

442. Taking account of present priorities and the realities of the situation, what would you think would be a reasonable sum for you to have to make available for these purposes?

(*Professor Epstein*) I am told £3 million.

443. That is not having regard to reality.

(*Professor Epstein*) No. Let us face it, our priorities in foreign relations at the moment are with the People's Republic of China, the Soviet Union and

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued]

[Chairman Contd]

Japan. We have a big programme with Europe as well which runs at around £1 million a year in each direction. This is peanuts on the side.

Lord Walston

444. Who decided those priorities: China, Europe, etcetera?

(*Professor Epstein*) It is a combination of political opportunities for the opening up of science. The Soviet Union has come to the top of our list since November 1986 when we had a large Soviet delegation and our Government started to take an interest in opening up with the Soviet Union. It has grown since then and we are receiving assistance from the FCO to increase our activities in this field.

Chairman] So those priorities of China, Japan and the USSR are a Government decision.

Lord Taylor of Blackburn

445. No, not necessarily. Lord Rhodes had quite a lot to do with the Chinese one.

(*Professor Epstein*) Lord Rhodes set that up for the Queen to give as her gift to the People's Republic of China during her State visit in October 1986.

446. It coincided with the announcement when the Queen was in China.

(*Professor Epstein*) This was the Royal Fellowship Scheme.

447. Exactly.

(*Professor Epstein*) But we have China as a priority in any case.

Chairman

448. If you so decided could you re-allocate funds from USSR, Japan and China to less developed countries and spend more there?

(*Professor Epstein*) We could re-allocate funds that are not earmarked for anything, yes. But we would still have to justify this in our bids each year.

449. So it is to some extent Government controlled.

(*Professor Epstein*) Not Government, it goes through the Advisory Board for the Research Councils.

450. That is a Government organisation.

(*Professor Epstein*) Well, yes.

(*Mr Cox*) We would have to justify it, as it is the Science Vote, on the basis of the science of the international relations. We collaborate with China, Soviet Union and Japan because of the excellence and the quantity of the science and the benefit to UK science of that collaboration. Hence our priority. The other reason we place priority on those three countries is because there is a difficulty of access to those countries in which the Royal Society can assist British scientists in gaining access to those countries. Hence we have for instance no particular programmes with the United States of America where clearly the benefit to British science is enormous but there are plenty of other opportunities for British scientists.

451. Is the criterion then the benefit to the UK's economy mainly?

(*Professor Epstein*) No, no; it is the benefit to UK science.

452. Which is different from the UK economy?

(*Professor Epstein*) Probably yes, actually, in the short term; yes.

453. Could you expand on that a little bit? Do you mean it could be good for the UK science but not very helpful to the UK economy?

(*Professor Epstein*) That is the second step with which we are not so much concerned: the exploitation. You are asking whether we could increase our programmes with Africa. How do you increase an exchange programme for British scientists to go to Nigeria? They are not going to come back with anything they would want to get there except for very specialised areas. But sending them to Japan or to the Soviet Union is a slightly different proposition.

454. But I thought you said earlier that the exchange arrangements with the LDCs could be increased but they were limited by funds?

(*Professor Epstein*) They could be increased in bringing people here and in sending people to teach in universities, which is rather different from going there for a scientific exchange.

Lord Perry of Walton

455. We are talking about aid in this Committee but the money which is spent on exchange schemes with Japan is not aid at all in this sense. We are right off the beam.

(*Professor Epstein*) No, that is a scientific exchange.

456. It is probably of more benefit to us than to them.

(*Professor Epstein*) Exactly.

Lord Thurlow

457. Does the Overseas Development Administration do what it can to lean on ABRC to get increased funding for you for the benefit of developing countries?

(*Mr Cox*) I am not aware of any contact between ODA and the ABRC. I do not think it is a system that operates at all. We do get money directly from ODA and there is no objection to this whatsoever. The amount of money is just over £100,000. It is the residue of the UNESCO money.

Earl of Ilchester

458. Although your memorandum confines itself to the Society's own activities in encouraging science and technology in developing countries you have of course mentioned other UK agencies in the field such as the ODA, whose project work you seek to underpin. Can you comment on the record of other UK agencies such as the British Council?

(*Professor Epstein*) I do not think we can actually. I do not think that would be our role. We can tell you what we think as private individuals and it would be perfectly right to say that in all our dealings abroad

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued]

[Earl of Ilchester *Contd*]

we find the British Council extremely helpful to us. It would not, however, be proper for us to have a view on how they perform their duties. We cannot help you with that.

Chairman

459. Could we put it slightly differently. Are there any ways in which you think the co-operation between the Royal Society, the ODA and the British Council could be improved?

(*Professor Epstein*) We have extremely good links with the British Council. We meet with the Director General and his senior officers every year, we are in constant touch through Mr Cox's office. As to how they are performing, we do not have a view.

460. By and large you are satisfied with the co-operation with them.

(*Professor Epstein*) With the co-operation and the way they help us, yes, absolutely. But how they do their job is not anything to do with us.

Lord Perry of Walton

461. Is the Royal Society the main adviser to the Government on science and technology?

(*Professor Epstein*) No; well—

(*Mr Cox*) One of them.

462. One of the main advisers. If the Government were to ask the Society whether they thought aid to developing countries should be increased or not, would it not have a view at all?

(*Professor Epstein*) That is a political decision. I do not think it would have a view. We are actually not advisers in the sense that the US National Academy of Science is to the US Government, where they have a constitutional requirement to supply advice. We do tender advice but only on a rather limited range of things and there is no obligation for it to be noticed.

Lord Butterworth

463. I do not want to over press you but could we try to get at it another way. We have great sympathy with what you have said about the need to encourage British scientists to go overseas to developing countries for short periods in order to enable them to improve their scientific performance. The main agency for this is the higher education division of the British Council. Is there anything you would like to tell us about how the higher education division works in this area in which quite rightly you say you have a great interest?

(*Professor Epstein*) I do not think the Society has a view on this but Mr Cox has experience of it.

(*Mr Cox*) In addition to the meetings at very senior levels with the British Council I sit as an observer on the CICHE and we keep in very close contact with the higher education department. Their link schemes and various others of their schemes seem to us to be working very effectively. Our particular interest is in ensuring that a sufficient proportion of the funds that are earmarked for aid to developing countries are actually earmarked

towards the science in developing countries. It is often quite difficult to identify, because statistics are not kept in that way, how much of the overall academic interchange is actually in the sciences. That would be my observation. As far as the Council is concerned, my own experience is very positive. However, that is a personal view entirely.

Earl of Ilchester

464. You have made a number of recommendations with a view presumably to improving the Society's scope and effectiveness. Do you see any or indeed all of these recommendations applying universally, that is across the board to the other agencies in the field?

(*Professor Epstein*) You mean to things like ODA and the British Council and so on?

465. Yes.

(*Professor Epstein*) Some of them do, some of them do not. We have only put down what we think would be helpful as far as we see science. We would like to see more science attachés; that would be helpful for everybody; yes. We have talked about replacement parts and maintaining equipment. That is only sound common sense. We should like to have more money to make sure that Third World country scientists can attend international meetings but we do not have a mechanism for that. We have an enormous amount of expertise which would be applicable in Third World countries, developing countries, and it is not exploited and used as much as it might be.

Lord Butterworth

466. May I take another of your recommendations, that "consideration should be given to the funding of visiting professorships ... and research fellowships to universities in developing countries for UK scientists on appointment of up to five years". Why do you make that particular recommendation?

(*Professor Epstein*) We have actually touched on this several times already this afternoon. This is a point which we see as enabling developing countries to improve their science base at the university level rather faster than through having to send their own people and bring them up through the system.

467. Have you asked British universities whether they would be prepared to release people for such a length of time?

(*Professor Epstein*) No, but—

468. Have you asked universities in developing countries whether this is at the top of their priority list?

(*Professor Epstein*) To answer the first question, we have not asked any universities but there are precedents for this, not specifically for releasing people to go to Third World countries but releasing people to go on to Research Council, full-time research fellowships with somebody in post to replace them for a limited period of years. So this in fact is a thing which does already happen. As regards Third World countries there is a constant trickle of requests. They are always saying they would like

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued]

[Lord Butterworth *Contd*]

more people to go out there, could we not send people for longer periods and of course the more senior the people are the more difficult it is to send them for more than a brief visit. There is quite a groundswell of desire for this, yes.

Baroness White

469. Have UK aid programmes in the past in your view been adequately based on scientific research? I was going to link that with your recommendation (b) about science attachés. It seems to me UK aid programmes could not be adequately based on scientific research unless there was some method of obtaining local information or local evaluation and passing it back to the UK. I was interested in your suggestion about science attachés. I wonder whether the Royal Society have discussed this with the Foreign and Commonwealth Office in any detail. As you know, the number of science attachés attached to major embassies in developed countries is very small indeed. A suggestion of science attachés in developing countries seemed to me out of any practical likelihood unless you could work out a regional system whereby someone was based in a major country in the area but had a certain responsibility for being informed and passing on information over a much wider area. Have you discussed anything of that kind with the FCO?

(*Professor Epstein*) Yes, we have.

470. With any results at all?

(*Professor Epstein*) We do have meetings regularly with the Foreign Office Minister and senior officials and we have indeed discussed this and urged this, yes.

Chairman

471. Without positive results so far?

(*Professor Epstein*) They see the point.

472. Without positive action then?

(*Professor Epstein*) Yes, that is right.

473. Would you accord quite high priority to this? Quite large importance?

(*Professor Epstein*) Not specifically for developing countries but overall, certainly, yes.

474. But if we had a regional scientific attaché for instance in Nigeria to cover West Africa and one in Kenya to cover East Africa, do you feel that would be a major advance and help the effectiveness of scientific and technological overseas aid?

(*Professor Epstein*) No, I would not give it very high priority.

(*Sir Ian McGregor*) May I make an addition to the question that was raised with regard to paragraph 3(e). The other side of the coin of attaching people to overseas universities for a reasonable period of time is that it seems the best way to maintain a pool of expertise of the developed world to replace the one that has diminished. If people are going to maintain links there is an optimal period of time in which they can clearly get experience of the country, of the problems of the country, build up that aspect of it, without necessarily losing their own place in their environment and progression in the United

Kingdom. It may be three years, it may be five years, I do not know. Certainly there should be a reasonable period of time for people attached to universities overseas to become really conversant with the problems that these countries really meet.

Lord Butterworth

475. I am sure that is of great benefit. I think many people believe that in the aid field any success is going to accrue from a partnership in which both sides gain. It just seemed that this had a slightly old fashioned ring about it, whereas what the British Council is now doing is much more integrated with what the university in the developing country needs, that is to say whilst they are sending people over here to train in order to go back, we might produce someone, not on a fellowship but within a link scheme, to hold the fort for a defined and limited period.

(*Sir Ian McGregor*) I would not object in any way. The point that I was trying to make was that these should be for sufficient lengths of time to be of advantage to the individual who is sent to the developing world. To make them too short a period defeats the purpose.

Baroness White

476. On the other hand would you not agree that if you are out of sight you are out of mind if it is for too long?

(*Sir Ian McGregor*) Yes, I can accept that with considerable feeling.

(*Professor Epstein*) That is actually one of the difficulties we have had with our fellowship exchange schemes with Japan, which is a very long way away from the job market for young post doctorals to come back again. Indeed this has recently been recognised and funds have been provided for return fellowships so that they come back for one year to a home based department after their Japan fellowship is completed.

Lord Butterworth

477. Mr Cox would realise that under a link scheme you are probably sending someone back to hold the fort but there is no reason why the period should not be split and two people go so that two people get experience and no one is away for so long that he is forgotten by his colleagues.

(*Mr Cox*) The link scheme is very attractive in terms of the structure of people's careers back in the UK. I do however think that the link schemes that we know of that the British Council operates, do suffer from being very short term. The impact is lost because there is almost—I do not wish to denigrate the scheme—too much international scientific jetsetting involved with it. What we were hoping was to get back to something we would consider to be of great benefit to the overseas scientific institutions.

478. It is quite right to say that, provided we have evidence that the university in the developing country wants to play it that way. Have the Royal Society that evidence?

(*Mr Cox*) We do receive specific requests of this

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued]

[Lord Butterworth *Contd*]

nature from universities, mainly in the developing Commonwealth, for precisely this.

Chairman

479. Do you feel that the aid programme in the past has been adequately based on scientific research? Is it soundly based in that way in general?

(*Professor Epstein*) No, probably not. There is a lot of information on tropical rain forest management for instance and this is overridden by the economic gains to be obtained by taking logs out and selling them to the Japanese and so on.

480. Would that affect the aid programme or is that an economic distortion?

(*Professor Epstein*) It does mean that if there is scientific knowledge which tells you how to manage something and you are not managing it properly then in terms of the resource it is being mishandled.

481. The money spent on the aid has not been effective.

(*Professor Epstein*) Yes.

Lord Thurlow

482. In the light of what you have already said about political considerations I do not know whether you will want to comment on this, but my question is: do you think the balance of ODA activities between developing local capabilities and achieving operational tasks is appropriate?

(*Professor Epstein*) I do not think the Royal Society has a view on that.

Chairman

483. You are perhaps not concerned with this either, but how effective is ODNRI, which we visited, in carrying out and commissioning research in support of ODA policies and projects? I imagine you have quite a lot of contact with ODNRI, do you?

(*Professor Epstein*) No, not actually. I am sorry to appear to be unhelpful but this is not something we either know enough about or should comment upon.

484. We visited the laboratories at ODNRI at Chatham. They are, we understand, concentrating all their scientific resources at Chatham from seven or eight scattered laboratories. That will surely be a source of great scientific expertise. Would the Royal Society not expect to be in fairly close touch with that?

(*Professor Epstein*) It has not been asked at all. In fact the management structure, as we understand it, does not seem to involve that kind of advisory board or body.

485. In general, without knowing very much about it, would you feel that you could probably make a contribution to the work?

(*Professor Epstein*) If we were consulted, perhaps; but we are simply not informed, nor do we have a view.

486. Perhaps we could move on now to some of your recommendations in your paper. Do you have

any general view as to how the technical aid can be made more effective?

(*Sir Ian McGregor*) The committee that I chair has made one fairly definite decision on this side and that is that we feel that the support that is given should be geared to the identification and the training of research individuals rather than to the lavish support of specific projects. Project support we would give second importance to the actual identification and training of people. That is our basic feeling in this. It really is a very difficult question to answer.

Lord Perry of Walton

487. Is this because you think that projects should be supported by the other organisations or that they are of less importance?

(*Sir Ian McGregor*) First and foremost the design of specific projects. Projects tend to be very much more expensive and require long-term funding. With the amount of money we have at our disposal as a committee, the amount of project support we could maintain would be very small indeed. The best and most useful way is in the support of training of scientists from the developing world.

Chairman

488. On your recommendation (a) we were rather surprised that you imply that the Government does not ask the Society's advice on this point. You would like to see that done?

(*Professor Epstein*) Yes, we think we could be helpful. There is expertise of a wide range relevant to developing countries within the fellowship.

489. That ties up a little bit with what you said about the ODNRI.

(*Professor Epstein*) Exactly; exactly.

Lord Thurlow] May I make one point on the second recommendation. From my own experience long ago in the FCO, I was very much aware that attachés, who were, according to the doctrine, always funded from FCO Vote, become easily expendable when the pressure is applied—as it usually is, though lately perhaps not quite so much. One gets these periodical cuts and you have to save 10 per cent in a given post and the attachés tend to be under enormous pressure to be sacrificed. It seems to me that if there were going to be scientific attachés with much prospect of permanence it would be preferable, if it was possible to get it through the Treasury, that the funding should be the direct responsibility of somewhere other than the FCO. This gets one perhaps into the structure of government but I do feel there is a real difficulty here in establishing scientific attachés on a reasonably permanent basis if the funding comes through the FCO Vote.

Baroness White] What other Vote could it come under? If it is an attaché it is an attaché to Her Majesty's Embassy or High Commission. I know the Treasury is impossible but I do not think trying to find someone else to pay for an attaché is constitutionally appropriate.

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued

[Chairman Contd]

Lord Thurlow] It is obviously very difficult.

Chairman

490. Our understanding is that the ODA and the British Council have scientific officers locally placed in these various countries. How do you see the role of the scientific attaché in relation to them? Could they do a different job to those scientific officers who are already in place? Do we not get a lot of intelligence from them?

(*Professor Epstein*) They do not have to overlap. There are really rather few missions, as we see it, which do have anybody scientific attached to them.

491. The missions themselves, but they are done, are they not, through the ODA scientific officers in various localities and through the British Council.

(*Professor Epstein*) I see; you are talking specifically about developing countries. I am sorry. We have this view on a rather broader scale that in general there ought to be more.

492. You are looking at it from the point of view of whether it would facilitate more effective overseas aid in science and technology.

(*Mr Cox*) The Development Divisions do have a range of expertise available to them. Sometimes a natural resources adviser is posted in a Development Division and in some countries the British Council has science qualified officers. What we are looking towards is identification of countries where there is a need for a very much enhanced scientific capability in that area. One would think immediately of certain countries in the world—Brazil springs to mind or Nigeria. Indeed, there is some scientific capability through the Development Divisions and others through the British Council.

Lord Perry of Walton

493. It seems to me this is a recommendation we should take note of because the British Council has in fact reduced the number of people that it has attached to embassies in developing countries over the last few years. It would be a very good thing, I would have thought, to increase it again.

(*Mr Cox*) Yes.

Chairman

494. Can we look at (d). Government funding for scientists to participate. This is mainly travel expenses and the like?

(*Professor Epstein*) Yes, and UK scientists also to be assisted with travel, to give lectures. We have a constant stream of requests for this.

495. Do you believe that should be done through the ODA or through the British Council?

(*Professor Epstein*) However it is done it should be done.

Baroness White] We can turn to industry obviously.

Lord Perry of Walton] Would it be appropriate for us to request that the Royal Society insert the word "adequate" before "funding"?

Chairman

496. I am sure they would agree with that.
(*Mr Cox*) Yes.

497. In (g) when you talk about non-governmental scientific organisations do you include charities?

(*Mr Cox*) Yes.

(*Professor Epstein*) Do you mean like Save the Children, that sort of thing?

498. That sort of thing, yes. They have a certain amount of science I believe.

(*Professor Epstein*) We do not actually have any relations with them at all.

499. What organisation were you thinking of? Could you give an example?

(*Professor Epstein*) Annex 1 will list them for you.

Lord Perry of Walton

500. There is a description in the United Nations of what an NGO is.

(*Mr Cox*) Could I expand a little on that? The point behind this recommendation as well is that there is an organisation called the International Council of Scientific Unions, many of whose unions have as their responsibility the promotion and support of science in developing countries. The Royal Society adhered to those unions. It is precisely towards assisting those unions in their role in developing science in developing countries, that this recommendation is aimed.

Chairman

501. Do you believe that this is quite a significant factor in improving the effectiveness of overseas aid?

(*Mr Cox*) We are convinced that that would be the case.

(*Professor Epstein*) Yes.

502. We have probably mainly covered (h) in our discussions.

(*Professor Epstein*) Indeed.

503. Again, (i) is exchange visits attracting overseas students here. I believe very strongly in the point you make in the last sentence about the value from the British point of view as much as from the overseas developing country point of view.

(*Professor Epstein*) Particularly post-graduate students, as Sir Ian was emphasising earlier on.

Lord Perry of Walton

504. Could I go back for a moment to (g)? It does say "increase multilateral support for international non-governmental scientific organisations", but that really began because of the lapse of our subscription to UNESCO. I take it that you would support multilateral support, whether or not it was through UNESCO or through the NGOs that are replacing it?

(*Professor Epstein*) Yes. To increase the effectiveness of those programmes.

505. I am not wanting to read the recommendation as meaning that you do not want to see us go

3 May 1989]

Professor M A EPSTEIN, Sir IAN MCGREGOR and Mr S J COX

[Continued

[Lord Perry of Walton *Contd*]

back into UNESCO but that you would rather see us do it this way.

(*Professor Epstein*) We do not have a view on that. However it is done one would want to increase the effectiveness of those organisations in relation to developing countries.

Chairman

506. Does any member of the Committee wish to raise any other general point? We have had a most useful, constructive discussion. Professor Epstein, would you or your colleagues like to raise any other points?

(*Sir Ian McGregor*) No, I do not think so, except to emphasise the last point you made. When you

train individuals you make friends with individuals. The long-lasting effects of this stand to Britain's credit for a long time. It is one way to make friends and keep friends.

Chairman

507. Thank you all very much for the way you have answered our questions. We are extremely grateful and I hope we did not embarrass you with awkward questions at any time.

(*Professor Epstein*) Not at all.

508. Thank you very much.

(*Professor Epstein*) May we thank you, my Lord Chairman, and through you your Sub-Committee, for giving us this hearing, this opportunity to talk to you. Thank you.

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(SUB-COMMITTEE I)

Wednesday 24 May 1989

ORDNANCE SURVEY

Mr P McMaster and Mr B E Furnston

WATER AID

Mr D Collett

*Ordered to be printed pursuant to the Order of The House of Lords of
29 November 1988*

LONDON

HER MAJESTY'S STATIONERY OFFICE

£4.30 net

WEDNESDAY 24 MAY 1989

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Caldecote, V. (Chairman)	Thurlow, L.
Perry of Walton, L.	Walston, L.
Shackleton, L.	White, B.

Memorandum by Ordnance Survey

Executive Summary

1. With changes of emphasis in the programme of British aid, the overseas survey and mapping work by Overseas Surveys Directorate of Ordnance Survey (formerly Directorate Overseas Surveys) has declined. The following manpower figures are from annual reports:

At 31 March	DOS					OS
	1964	1969	1974	1979	1984	1989
Cartographic staff	299	288	207	191	86	24
Field Survey Staff (located overseas)	51	49	43	38	15	—
Seconded Staff	2	5	17	24	20	14

This decline strikes at the ability of a country to properly plan its development and at its good administration.

2. With further recent changes (see 1.5 and 1.6) monies spent on overseas mapping projects will cease.
3. The provision of specialist expertise, by advice in England and by seconded staff overseas, will continue at a low level (see 1.6).
4. Training of overseas staff will continue if self-financing through the British Council (see 1.5).
5. Britain does not, and has not, funded research for survey and mapping overseas (see 2.1)

Ordnance Survey
March 1989

1. Ordnance Survey and its Overseas Surveys Directorate

1.1 The Ordnance Survey of Great Britain thanks the Sub-Committee for its invitation to submit written evidence to its enquiry into the United Kingdom's scientific and technical aid to developing countries.

1.2 The Ordnance Survey (OS) is, of course, the national mapping organisation of Great Britain. While survey and mapping are increasingly involved with the latest technological developments these subjects are only a very narrow sub-set of the whole field of science and technology. OS has close relations with developing countries through its Overseas Surveys Directorate which is the successor to the former Directorate of Overseas Surveys (DOS). DOS was one of the four original in-house "scientific units" of the Overseas Development Administration (then Ministry) in 1963. It was merged with Ordnance Survey in accordance with the recommendations of a Rayner Scrutiny in 1984.

1.3 Since 1984 the Overseas Surveys Directorate has provided, with ODA funding:

- technical advice to ODA, ODA's overseas Development Divisions and overseas governments concerning surveying and mapping inputs to the British aid programme;
- liaison and advice on training facilities and courses for overseas personnel including acceptance into the OS Overseas Training Unit. This unit, located within OS's Training Division, provides courses on an individual basis for up to 12 students in photogrammetry and cartography at technical level;
- an information service and data libraries relating to survey and mapping in developing countries;
- appraisal, administration, planning and monitoring of survey and mapping projects approved and funded by ODA. Production work for these projects is undertaken within OSD, elsewhere in OS when technically appropriate, or through contracts placed with the private sector;
- control of issues of overseas maps produced by DOS and OSD.

24 May 1989]

[Continued]

1.4 A further decision stemming from the Rayner Scrutiny was that ODA ceased to allocate any specific sum of money to survey and mapping, other than for the basic provision of advice and information (and, initially, training). Survey and mapping projects must therefore contend for funding along with all other types of project within an overall country allocation. Since that change there has been a steady decline in the work proposed by ODA for developing countries and in fact only two substantial mapping projects have been added to the programme of OSD since 1984. This has resulted in a steady decline in the manpower employed within Ordnance Survey on overseas work and in the business represented by such work in the Ordnance Survey turnover. Associated figures are given at Table 1.

	1985–86	1988–89 (provisional)	1990–91 (anticipated)
"Core" staff, (ie for advice information and training) at 1 Apr	19	17	10
"Project" staff at 1 Apr	92	39	—
Training staff (Overseas Repayment)	—	—	4
Supporting staff (ie personnel, clerical, finance, office services) at 1 Apr	22	12	provision as necessary
"Core" funding (includes VAT)	£1,452,099	£820,000	£750,000
"Project" funding	£2,673,000	£835,000	£ —

1.5 A further review of OSD activities was made by ODA in September 1988. Among its conclusions, the study confirmed that "the OSD map and air photography database is a unique and irreplaceable resource which must be preserved and updated as much as the flow of incoming material allows" but it recommended that OSD attempt to transfer the cost of its maintenance and operation away from core funding to country funds and to other customers. It also confirmed that the cost of the training unit must in future be recovered from fees charged to its students—the great majority of students are funded through British Council scholarships—and that the last remaining overseas advisory post should be withdrawn with the duties being carried out through short visits from headquarters.

1.6 For projects the review concluded that prospects for approved work were very small and that the planned closure of the overseas production division at OS was unavoidable, at least for the short to medium term. It agreed, however, that there appears to be a steady demand for staff for secondment to overseas aid funded posts and that "in the long term there may well be a resurgence of interest in the updating of national mapping resources as they become sufficiently out of date to constitute a potential liability".

1.7 At present it is thus planned that OSD will continue to shrink during 1989–90 towards the projected figures in the final column of Table 1, ie 10 core funded staff and four in the Training Unit funded by student fees. OS is nevertheless prepared to reallocate staff to new overseas projects if they are approved by ODA.

2. Research

2.1 Neither OSD nor DOS before it have considered original research to be appropriate to their role. Development, however, has certainly been incorporated in map production tasks. Most recently OS has developed a flowline and techniques for the production of standard line mapping at 1:100,000 scale, with contours at 40m Vertical interval, from SPOT remote sensed imagery. This work has been done, as on all previous occasions, within the context of a production mapping project. As projects have declined in number and in scope, so opportunities for such development work become few and strict financial control also makes it increasingly difficult to test new methodology without prior assurance of its producing a financial saving.

3. Training

3.1 OSD is involved in training in four ways.

3.1.1 OSD produce and keep up to date a guide to training and education facilities and courses in surveying, mapping and land administration in Britain. Every opportunity is taken to distribute this information and to give direct advice on needs and opportunities during visits overseas.

3.1.2 When training applications are processed by British Council, OSD gives advice on the placement of students appropriate to the needs of the country and the background of the candidate. In certain countries where there is a significant input of training places, usually associated with manpower assistance, OSD have contributed to manpower reviews by ODA's Development Divisions and to associated training recommendations.

3.1.3 The training unit at OS continues to offer technician level practical training in photogrammetry and cartography—ie in conventional map making skills. Courses are individually designed and timed for each of up to 12 students at any time using components taken from over 40 standard modules and other specialist subjects if required. The recent ODA Review has urged the development of new modules for digital mapping and other higher technology and this will be done when demand is known.

24 May 1989]

[Continued

3.1.4 For many years now project work undertaken by OSD overseas has always included on the job training for field technicians. Projects have been associated wherever possible with on the job training and in the past with middle management training through exchanges of staff. Such training however, can only be undertaken effectively where the project is sufficiently large, and lasts a long enough period, for the trainees to follow through the sequential stages of production in their own conditions. This is now rare.

4. *Provision of Specialist Expertise*

4.1 After the merger of OSD with OS, OS has continued to maintain a complement of some 12 staff who are available for full time and long term secondment overseas. At present professional staff and technician staff are filling such posts on secondment to ODA or to overseas governments through ODA. If it is appropriate OS provides some items of their equipment on hire although in other cases these will be purchased by ODA.

4.2 At present there is a pool of staff available in OS, and more widely in Britain, with good overseas experience from which the number of posts which are likely to be funded can be filled. Opportunities to give experience to young and junior staff are very much fewer than in the past and the pool is therefore shrinking as older staff retire and others progress in their career and in their family life to positions from which overseas service may no longer be possible. Experience is particularly desirable for surveyors to be effective in developing countries. Unlike some kinds of scientific work where laboratory conditions can be created, survey work must be undertaken on site where the environment and general conditions differ greatly from those in Britain. The ability of OS, and Britain, to provide experienced expert staff is endangered by reductions in project work to which new staff can be introduced under supervision.

5. *Projects*

5.1 For any project to be approved and funded as British Aid, a detailed proposal must be submitted to ODA—usually to one of ODA's Development Divisions. This proposal is then subject to technical appraisal, in which OSD should be involved, economic appraisal and a balancing process in which potential projects are matched to available funds. Although costs can be estimated, the benefits of survey and mapping are often indirect and difficult to quantify. Formal economic appraisal favours more clear cut proposals.

5.2 In this process, mapping and land information is competing for priority with all other sectors. In these circumstances, the maintenance of national geographical data—as indeed for many other data sets such as meteorology, hydrology, resource inventory and vital statistics—is less appealing than more immediate and more visible objectives. This weakness is compounded by the facts that in most countries survey departments are small, they need relatively high funding for equipment and operations in comparison with the public service generally, and their work is often seen as too technical for easy understanding. Developing country governments tend not to give land information projects sufficient priority to command a fair place on their “shopping list”.

5.3 Mapping, particularly, is a long and sequential process, so that by the time a specific demand for maps is known, their provision often introduce delays. The production of national map series seeks to avoid this problem by anticipating need. Justification is not hard to find. In such diverse cases as the discovery of copper at Orapa in Botswana, urgent development after the intervention in Grenada, the Lake Nios disaster in Cameroon and the most recent earthquake in Yemen Arab Republic, mapping produced by DOS/OSD became suddenly in great demand and in a timescale impossible to meet through new production. But such benefits cannot be quantified in a normal appraisal of economic return.

5.4 When specific demand does arise there is a natural tendency to fund only such work as will meet the immediate, narrow, purpose. This leads to non-standard products, with differing specifications, which may be unsuitable for subsequent use for different purposes.

6. *Trends in technology*

6.1 Development of survey technology is tending to maintain, if not increase, the gap between developed and developing countries despite long standing efforts to transfer knowledge and experience. Position fixing, for example, is well on the way to being revolutionised through the advent of the Global Position System (GPS) of space satellites. Within a few years, when the full constellation of satellites has been launched, this system, developed by the USA, will allow the determination of absolute positions sufficiently accurate for many purposes, and relative position vectors sufficiently accurate for all but the most exacting needs. Already the use of the system in the West is beginning to supercede conventional methods for all but very short ranges.

6.2 Remotely sensed imagery captured by space satellites now offers an effective technology for deriving broad brush, and some specific, information—for some purposes it can be even more effective than conventional aerial photography. For mapping SPOT imagery can be used to revise and, in some areas, to initiate maps at scales up to 1:50,000. Quantitative height information, can be derived, however, only

*24 May 1989]**[Continued]*

by the use of sophisticated techniques. The detail of normal mapping cannot be derived without sophisticated enhancement techniques.

6.3 In the developed world, survey data and mapping are increasingly being combined with users own data in a complex computer based Geographic Information System (GIS). Large scale versions of such systems, particularly when based on the parcels of land distinguished by different ownership or occupation and often known as land information systems (LIS) can also provide useful aggregate and statistical data almost instantaneously. Such systems require data to be held in digital form and, for the more "intelligent" systems, in digital vector form.

6.4 The common trend is to greater sophistication in equipment, using complex electronics, with a short life compared to old optical/mechanical instruments. It is expensive to acquire, needing scarce foreign exchange, and to repair if its systems fail, yet its use is cost effective.

6.5 This trend results in a continuing need for assistance by developing countries. With increasing populations and greater consciousness of the fragile environment and the need for development that is sustainable, geographic information, itself dependent on survey and based on maps, becomes more crucial. Yet despite sustained effort, much of which has been successful, to transfer existing technology, advances are such that the developed world continues to have better data, techniques and expertise.

7. Trends in Demand

7.1 Increasing consciousness of the need to see development in a wide context of the existing environment and social structure and to forecast its results should lead to greater requirements for mapping and land information. Funding agencies, however, are unwilling to accept the timescales and costs that are involved in collecting and presenting the information that they demand.

7.2 Meanwhile much information, not only of topography, but also of land use data, geology and other thematic types, is difficult to locate and to consult for a variety of reasons. The greatest shortcoming, however, is that very little of the survey and mapping undertaken in the last decades has been maintained or revised. DOS/OSD alone has produced over 2½ million square miles of mapping in the last 40 years of which only a small proportion has been revised. To take a single example maps of Sierra Leone, published between 1964 and 1973 at scales of 1:50,000, 1:250,000 and 1:500,000 have been neither revised nor reprinted. OSD is able to supply urgent enquiries with monochrome photo-copies, inevitably of poor quality and omitting major changes of the last 20 years, but neither the Sierra Leone government nor any donor has seen revision as aid.

7.3 After a long period of little interest outside the developing countries themselves, there are now some signs that aid donors are beginning to see land tenure systems as important to development. Reliable title records facilitate the collection of rents and rates and allow development to be monitored. Some organisations have taken the view that agriculture development is often inhibited by a lack of secure tenure of rights in land. Survey, of course, is an essential ingredient in land tenure, in order to define, in such a way that it can be re-established if necessary, the extent and boundaries of each land parcel. Britain has much to offer in support of such a trend, particularly in the Commonwealth countries which share a common background of law. Registration of title to land, supported by large scale mapping in the "English system" offers a cost effective solution where the surveys are easier to maintain, though somewhat less precise, than most alternatives in use overseas.

8. The Merits of Bilateral and Multilateral Funding

8.1 Although survey and mapping have an international mathematical and technical basis, there are considerable differences in approach between countries or groupings of countries. The benefits of interaction and competition between such approaches and between particular techniques which may have been developed in any particular centre of excellence are self-evident. But when it comes to applying an approach or a particular technology within a production organisation—and a national survey and mapping office is concerned almost entirely with production and very little with research—a mixture is usually confusing and de-motivating. Multilateral agencies naturally tend to use a wide variety of implementing agencies, usually selected by competitive tender. This can lead to successive projects introducing very different techniques and styles. Similarly when staffing a project, candidates from a variety of countries are quite naturally considered, and selected on the merit of an individual background. This has certainly resulted in the past in a very mixed team of individuals whose approaches have clashed whether or not they have made a sympathetic team. In a sequential process this can have very bad effects when steps in the sequence are tackled in different and conflicting ways.

8.2 In contrast bilateral funding can lead to an effective "twinning" arrangement where close relations can be established over many years and used to good effect in resolving many problems unforeseen at the original stages. Such a close relationship, it can now be recognised, became established between DOS and most Commonwealth countries and is surely worth preserving. Certainly other donor countries such as France and Germany strive hard to achieve such relationships and to extend their influence.

8.3 The legal background to survey, particularly in respect of boundaries, both national and individual,

24 May 1989]

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is an important factor and crucial in the case of land tenure. Individuals from countries with legal systems based on the precepts of Roman-Dutch law or the Napoleonic Code, find it hard to comprehend the philosophy of most Commonwealth countries.

Examination of witnesses

Mr P McMASTER, Director General, and Mr B E FURMSTON, Director, Overseas Survey Directorate, Ordnance Survey, called in and examined.

Chairman

509. Thank you both for coming and thank you for the memorandum that you sent, which we found very useful. May we ask a general question to start with, which will give you an opportunity to expand your memorandum if you so wish. What is your general view of the importance and relevance of surveys to overseas aid and to less developed countries?

(*Mr McMaster*) My Lord Chairman, I very much welcome the opportunity to be here and talk on the subject because the question of survey and mapping to any country, developed or otherwise, is very important. It underpins a great number of developments and is the basis of almost all planning and environmental protection measures and development of the natural environment in a country, wherever it is. Survey and mapping is also the basis of secure land tenure, which again is an important aspect of enabling the place to develop properly. In an undeveloped country it is even more important that people know what the resources are and how areas lie one with another and how therefore development can best be taken forward. Perhaps I may say that I think we here in Britain, having had very good maps for a long time, tend to take them for granted. This is a difficulty because it is also quite difficult to quantify the benefits that come from general mapping.

Lord Walston

510. Perhaps we could expand on that a little. You mentioned the demarcation of land and land ownership, which clearly is of great importance. For the mapping out and deciding of routes to be taken for feeder roads, for instance, or for small dams and things of that sort, which are essential to developing countries, would you say a proper survey is essential or desirable? Secondly—this is a rather different point particularly with regard to the training of surveyors—in this country, I hope that you will not get me wrong when I say it is a relatively easy job to carry out a survey: you can drive in your Land Rover if necessary or in your ordinary car with the various implements you need to do it and you can easily do your measurements. If you have to clamber up and down rocks and through bushes and over the reeds, it is a very different job. Would you say the training in this country for such people is adequate or is it making them think that it is rather a soft, easy job whereas it is in fact a tough and arduous job?

(*Mr McMaster*) On the question of the need for

surveys in roadbuilding, I think there are two aspects. First, there is the general mapping of the country that is required so that one knows which areas of it would best repay investment for development. For this one needs small scale mapping that gives an overall picture. Then following on from that, depending upon the complexity and sophistication of the road network one might be building, one may well need engineering surveys to carry the road forward—maps at a large scale and over a limited area. On the question of training perhaps I may ask Mr Furmston, who is Director of Overseas Surveys at Ordnance Survey and who was in charge of DOS, the Directorate of Overseas Surveys before it amalgamated with Ordnance Survey, to reply. He has great overseas experience and knowledge about training.

(*Mr Furmston*) My Lord Chairman, on training, the points made are very relevant. Training I believe can be divided into two, perhaps three, different aspects. There is the academic side of learning one's job, learning the mathematics, learning the techniques of handling instruments. That I believe can be carried out effectively in this country, more effectively perhaps than overseas, because in this country happily we do not have the problems of supplying materials and foreign exchange difficulties that many developing countries have. However, when it comes to practice and using the equipment, in the old Directorate and now in Ordnance Survey we very much believe in carrying out practical work overseas wherever possible. Indeed, the landscape as well as the communications, the sort of area, large tracts of empty country, simply do not exist in this country. One cannot train people to work in that landscape in this country, as you rightly say. The final point I would make is that training does not stop simply with learning the job; a very important aspect is the gaining of experience and learning through encountering problems through actual work. That can be done only on a real job.

Lord Shackleton

511. I wish to ask Mr Furmston or Mr McMaster what their comment on their own figures is. It seems to me extraordinary that in 1964 there was a case for employing nearly 300 cartographic staff and a field survey staff of 50 and in 1989 there are no field survey staff and only 24 cartographic staff. These figures presumably were achieved out of the Rayner study and investigation in trying to cut down. As Mr McMaster knows, I feel rather strongly on the subject of the importance of the Ordnance Survey, and

24 May 1989]

Mr P McMASTER and Mr B E FURMSTON

[Continued

[Lord Shackleton *Contd*]

the overseas survey. What is the evidence that there is not a demand or is that in fact determined largely by ODA saying, you can have so much money and we have to cut here and there? The Remote Sensing Society commented that the ODA policy looked based too much on priority by the economists and administrators. I find it inconceivable that there are areas that required that number 15 years ago that do not need any now. We were afraid this would happen when the overseas survey was abolished, and this is no reflection on the Ordnance Survey itself. Mr McMaster knows that I have not refrained from being critical of the Ordnance Survey in some directions, but he also knows that I am a passionate supporter of the work that it does. Perhaps I may touch on comparison with other countries, particularly the French, who have an enormous establishment not only training surveyors from all over the old French empire but doing a great deal of work. Is it just that we do not see any profit for us, and a lot of our overseas aid is limited by the need to make a profit, or what?

(Mr McMaster) My Lord Chairman, we have been very grateful for the noble Lord, Lord Shackleton's support in the past, and he frequently puts his finger on the right spot. As regards this question, there was I believe a change of attitude—I am speaking outside my own area here as it is of course ODA who control the funds—in that as I understand it they altered their policy from supporting groups such as the Directorate of Overseas Surveys, indeed, supporting surveys in themselves, to requiring overseas countries to bid for aid monies through projects and then to prioritise these projects. It is in this area that the difficulty arises with surveys and mapping. As I mentioned earlier, it is quite difficult to quantify the benefits of survey and mapping in money terms. It is also not a high profile activity in a political sense. Therefore, many other projects appear to be more attractive and they have drawn the funds away from survey and mapping, I believe. Perhaps Mr Furmston could add to this.

(Mr Furmston) I would like to add that in my experience in travelling overseas there is no lack of need. What Mr McMaster has said is very relevant. Survey is difficult to justify. It is very difficult for overseas survey departments—which in general are not strong departments; they are often weakly staffed—to argue a case with even their own central planning ministries.

512. Are they expatriate staff overseas? They used to be. Or are they local ones?

(Mr Furmston) There are very few expatriates now, and certainly very few in the senior positions who would need to be listened to by the central ministries. Therefore, that is a difficult process for local departments. If they go through it and get a project submitted as part of an overseas government shopping list and then that project for one reason or another is not accepted, they get very disheartened by this and it becomes quite difficult to persuade them to go through what is quite an effort in gathering support from allied departments and arguing an economic case for a project.

Chairman

513. Whereas in the old days you could take your own decision and get on with it without a lot of discussion in the department?

(Mr Furmston) Before the late 1970s the situation was quite different in that the old Directorate had an allocation of money which was tied to survey and mapping and that was then split up according to priority and need. There was a basic amount of money allocated to that sector.

514. Would you agree that the decline in your operation in many cases means that the country to which other overseas aid might be offered is in a worse position to be able to make the best use of it, in other words, the infrastructure to receive the aid is less efficient?

(Mr Furmston) I think that must be true in certain cases although one cannot argue that survey is a foundation for everything. After all, there is industrial development and so on which does not really require much in the way of survey systems.

Lord Shackleton

515. Would you comment on the point I made about comparing your effort with the French effort? Are you saying the French effort is simply to the glory of France or do they get a good return on that? The Ordnance Survey is deeply into geographic information now. Are you doing anything about that, teaching people the importance of geographic information systems?

(Mr Furmston) Perhaps I may take those points one by one. The way in which IGN works—the *Institut Géographique National*—I do not fully understand, I confess. It seems to have funds. It promotes, and in a sense it subsidises, French interests. They are active in giving grants to things made in France or money to buy things made in France. They of course have a large parish, if one may use that word, in the old French territories. They are indeed very active there. They are also very active in the international scene of bidding for World Bank, United Nations and other international aid agency money and have quite good lines of communication, particularly with the European Development Fund. I confess that I do not understand the entire funding mechanism of how IGN operate.

Lord Thurlow

516. Is the implication of what you have been saying that under the later procedures of ODA for project funding and initiative coming from the other end there is virtually no alternative to the progressive shrinkages, as you say in the paper? To the layman it seems a most unfortunate shrinkage with potentially very grave consequences in many different fields for the countries that we wish to help. Would you say then that in this sphere there is a very strong case for some qualification of this project funding procedure?

(Mr Furmston) I believe so myself as an individual and as a surveyor, but clearly one cannot be too selfish about this. All kinds of aid monies are short,

24 May 1989]

Mr P McMASTER and Mr B E FURMSTON

[Continued]

[Lord Thurlow *Contd*]

both bilateral and multilateral, and there is great pressure on the money and there are many fields that demand assistance. Therefore, there has to be some means of prioritising between different sorts of help and different sectors. Agriculture, industry, roads, railways, food and basic health care are all very important subjects which demand aid money and survey can ask for no more than a fair share of what is available.

Baroness White

517. Can you supplement your resources and activities by bidding for some of the multilateral opportunities? You mentioned that the French are rather good at that, as they are in other respects in getting their own way. Are you in a position where you can do something with the UNDP, World Bank or whatever to strengthen your resources?

(Mr Furmston) Yes, we can and do.

518. Can you give some relevant examples of areas where you have been able to deploy your own resources to advantage?

(Mr Furmston) Yes—it is a chancey business, if I may say so. It is a very competitive scene in bidding for international aid money. It is not very rewarding in that one has to expand a lot of effort and a good deal of money in presenting bids that may well fail. In that sense I guess it is no different from any consultancy contracting. We have been successful in carrying out work from time to time. We did some urban mapping for Monrovia, in Liberia, with the World Bank. We produced something like 50,000 sq km's of mapping in Southern Sudan for the United Nations High Commission for Refugees. We have carried out a number of small consultancy visits and written reports on a number of survey issues. We have had some success, but the extent to which we can exploit it is a little difficult. It means spending risk money on travelling and on preparing bids, which at the end of the day may not succeed.

Lord Butterworth

519. I am not quite sure from the memorandum: do you work in two sections, one a kind of overseas section which seems to be almost over-dependent on aid; and a British section that is independently funded?

(Mr McMaster) Our overseas survey is part of Ordnance Survey and our monies are vote monies. The overseas survey exists to serve overseas aid interests. We have made great efforts since the decline of 1984 to attract monies by going to World Bank and by going to Brussels and attempting to stimulate—

520. But does the Government provide you with some core income for the overseas side of your work?

(Mr McMaster) ODA does.

521. There is a core income that comes from ODA which therefore will enable you to take these risks in bidding for multilateral projects or not?

(Mr McMaster) There is money from ODA. Mr Furmston can better explain how it is arranged.

(Mr Furmston) Money from ODA is given only against specific tasks.

522. Ah, so there is no core income from ODA?

(Mr Furmston) We call some of the money, "core", but it is used to maintain our data libraries and our appraisal and consultancy service for ODA.

Chairman

523. But who pays the salaries of these people in your table who are staff? Is that paid by the Ordnance Survey irrespective of ODA?

(Mr McMaster) No, the money is recovered from ODA.

524. But they are permanently on your staff?

(Mr McMaster) Yes, they are our staff and they are paid as Ordnance Survey staff.

525. So that is core funding—they are there all the time to do work in the overseas field?

(Mr McMaster) The 24 people in 1989 are in Ordnance Survey on overseas work. The cost of those people to Ordnance Survey is charged to and paid for by ODA. As Mr Furmston says, the library staff are maintaining an archive of overseas photographs and information within Ordnance Survey.

526. I find it difficult to see what contribution you can make to overseas aid without any field staff located overseas.

(Mr Furmston) There are seconded staff overseas—the bottom line of the table: we still have 14 staff who are seconded to overseas governments and who are occupying positions overseas.

527. So they are your core staff?

(Mr Furmston) They are Ordnance Survey permanent staff but they have been seconded through ODA to the service of an overseas government. For example, the current surveyor-general in Zambia is our man; the survey adviser in the Yemen Arab Republic is our man.

528. But the old field survey staff were semi-permanently in a particular country?

(Mr Furmston) Sort of; the old field survey staff were staff engaged on project work within the Directorate of Overseas Surveys (part of ODA) and then within the Overseas Survey Directorate (part of Ordnance Survey), generating cartographic work for the cartographers, so they would be working on particular projects which had been funded by ODA.

529. And now?

(Mr Furmston) Equally the cartographic staff have been working in exactly that way. In 1984 we had 86 cartographers, permanent staff of Ordnance Survey but engaged on overseas projects, and paid with money recovered from ODA. By 1989 the number of projects had fallen away so 62 of those staff have been transferred into other parts of Ordnance Survey and are now undertaking work for Britain. Only 24 remain in the Overseas Survey Directorate carrying out project work funded by ODA. The staff therefore are Ordnance Survey permanent staff. They can be employed on a whole variety of tasks.

24 May 1989]

Mr P McMASTER and Mr B E FURMSTON

[Continued]

[Chairman *Contd*]

530. I understand the top line. I still do not quite understand the difference between the second and third lines, the ones who are located overseas who are your staff and the others whom you call "seconded".

(*Mr Furmston*) The difference is that our staff were working on specific projects. We might perhaps have undertaken to produce 50 map sheets of country A, and we would send out our field staff to do the field work to produce those maps. The seconded staff are actually holding permanent positions within an overseas government so they are working within an overseas government department.

531. Providing their skills to the overseas government?

(*Mr Furmston*) That is correct.

Baroness White

532. Are they on a long-term contract to the overseas government?

(*Mr Furmston*) In general ODA works on two-year contracts that may be extended for a further two years, and so on, so they vary. We have some staff who have done as little as eight months. We have one member of staff who has been in his post for eight years, that is for four successive two-year secondments.

Lord Walston

533. If ODA were to come to you and say, "We would now like you to make a modest" (or substantial) "survey in Tanzania", would you be able to draw from your own staff or would you have to go out into the market place and find the surveyors; and, if you had to do the latter, could you find them?

(*Mr McMaster*) At present we could find them from our own staff. Ordnance Survey strength is some 2,600 people, which is very large compared to the numbers we are talking about here. Therefore I am sure that, although it would perhaps cause some disruption to our internal programmes, we would be very willing to make that effort to supply staff to overseas projects. At present we still have staff who have experience overseas; that is a situation that will change with time. Indeed, we are rapidly losing the ability to react to that.

534. That was to be my follow-up question: is there a sufficient number of people with overseas experience to be able to do these rather difficult jobs?

(*Mr Furmston*) Yes, I am sure there are at the moment. All the remaining staff of the Directorate of Overseas Surveys were transferred and merged with Ordnance Survey so there are those staff coupled with the fact that from 1969 the professional staff of the Directorate of Overseas Surveys and the Ordnance Survey were merged into what was known as the Joint Survey Service. Therefore, those staff shifted between the Directorate and Ordnance Survey and most of those staff remain in Ordnance Survey. The longer term problem is of course that many of them are promoted into more senior positions from which they cannot be released. Some

get married and develop family or home ties which means that they are perhaps reluctant to go overseas again, so the real pool slowly diminishes. What I find worrying for the long term is that in the last five years or so we have been able to introduce only about three young professionals and four or five technicians into the overseas scene. The breeding of new experience is now rather small so that a long-term problem will emerge perhaps in 10 years' time.

Baroness White] Diminished surely to such a point that one must ask how long you can continue doing overseas work at all.

Lord Perry of Walton

535. I understand when you say the costs of projects overseas are recovered from ODA. What I do not quite understand is whether you recover money from ODA other than project money to support the overheads like the library or whether that is just added on to the project?

(*Mr McMaster*) The full costs are recovered from ODA. When we cost a project the cost of the staff involved includes an element for all overheads.

536. So there is no money coming that is not project money?

(*Mr Furmston*) Yes, there is a certain amount, my Lord Chairman. On the libraries, for example, we have always offered to ODA, both as the old Directorate and now as part of Ordnance Survey a consultancy service of advice, information and appraisal of potential projects and an advisory role in travelling the developing world and advising on the spot. In addition we have maintained our survey data libraries which contain photographs, maps, survey data and the whole survey scene. Those have been funded centrally from ODA as what one might term core. It is enough to fund that part of the operation. The project side is separate although a project within its funds would have to allow for the overheads involved, for example, in using the library or using the consultancy services internally; these draw an element of both.

Chairman

537. The ODA has said that there is a declining demand from developing countries for mapping services. Given that the general principle is that requests for overseas aid should come from the countries involved, how do you react to that opinion? Do you think there is really a decline in demand from developing countries?

(*Mr Furmston*) I believe there is a decline in demand if it is evaluated by the amount of requests that filter through to this country. I believe the need is as great as it ever was and in some ways is increasing as many of the maps originally made by the old Directorate become out of date.

538. Who filters out the demand?

(*Mr Furmston*) A project would need to be put up. It needs to go through the central evaluation process of its own government and therefore needs to win the support of the Ministry of Finance, or the Ministry of Economic Planning, or an equivalent

24 May 1989]

Mr P McMASTER and Mr B E FURMSTON

[Continued]

[Chairman Contd]

within the overseas country. Then the project would be submitted as a candidate for British aid through the High Commission to ODA either directly or through one of ODA's Development Divisions.

539. Is this an example of the short term requirements taking precedence over the longer term?

(Mr McMaster) I think that would be correct, my Lord Chairman. The projects are initiated in the country and are in competition one with another in the country itself. Infrastructural matters such as mapping are often put back in favour of projects that are seen to be of more immediate interest.

Baroness White

540. This was emphasised in a note we had from the Royal Institution of Chartered Surveyors. They say: "Of particular importance to developing countries is the need to build up an effective infrastructure, eg of technical departments in government. Many, perhaps most, aid donors look for quick returns either in financial terms or in effectiveness. The long time it can take for infrastructural development projects to show dividends means that such projects stand much less chance of being accepted and funded, even though in the long term such development may be vital". Would you agree?

(Mr McMaster) Yes, I would indeed.

541. That is borne out by your experience?

(Mr McMaster) Yes, that is so. It is certainly the experience of people visiting overseas countries that the need for mapping is there as it ever was. Also one sees—we have touched on France—that there are other countries prominent in aid given in mapping such as Canada and Sweden. There is no lack of important projects for them to undertake.

542. For which we would be very well qualified?

(Mr McMaster) Indeed.

543. It seems to me very unfortunate. That is one reason that I asked you earlier about how far you could supplement from the multilateral organisations with a view to the needs of the country and from your own point of view. It seems to me you have so little in the way of spare resources that that must make it difficult for you to bid in the field against other countries that deploy more resources in this area?

(Mr Furmston) I am sure that that is true. To be successful in the overseas scene I think one needs a very great presence in the corridors of power. One needs to visit Brussels and Washington very frequently. Although we do make visits, we have to cut our cloth according to the available money, and we have to try to weave those in between advisory visits elsewhere. I suspect that we do not visit enough. We do what we can.

Chairman

544. Do other agencies, bilateral or multilateral, provide mapping services to less developed countries?

(Mr Furmston) Yes, they do. Mr McMaster has mentioned Canada and Sweden. Japan do also, for

example, Norway to a limited extent, and Finland to a limited extent. Poland and East Germany are also active in giving supported aid.

545. These are all in response to requests from the less developed countries?

(Mr Furmston) Yes.

546. Which you implied earlier got filtered out and did not reach us, but they seem to reach other people?

(Mr Furmston) I think to some extent that happens, yes, in that their procedures, I suspect, are sometimes different from ours.

547. So ODA procedures are a bit bureaucratic and restrictive to this sort of response, are they?

(Mr McMaster) I would not quite put it that way, my Lord Chairman. If a country knows that, for instance, Sweden is allocating a certain amount of money to education, to agricultural development and to surveying, then it will bid in those sectors.

548. In other words, they know that you have been cut down so much that there is not much point in asking you to do it?

(Mr McMaster) Another way of looking at it might be to say that the country is told that everything is up for grabs, all the aid money, "You say what you want". Then forward come projects that have a short term pay-off, projects which perhaps politically are very attractive. Mapping is neither of those things.

Lord Shackleton

549. Will the ODA feel any concern in this area? They must look at these figures. Are they convinced or do they sometimes late at night say, "I wonder whether we have the figures right—we have had a great study"? How far is there awareness of this and how far, if you talk to them, would they just say, "That's the old overseas survey grumbling again"? Is there an awareness? I should have thought this was one of the most important areas of effective technical aid.

(Mr McMaster) I think there are certainly individuals in ODA who have great sympathy for the position of the mapping area and of aid giving but there is this policy decision that has occurred.

Lord Thurlow

550. Is it correct to say that to remedy the situation it would be necessary to get back to a kind of allocation procedure so that there would be over the years a block of money to support staff?

(Mr McMaster) That is one way that could be adopted. If countries knew that projects concerned with mapping were looked on with favour that too would probably stimulate more projects of that nature. I am not sure however that that would fit well with the current policies of ODA.

Baroness White

551. May I ask another question arising out of the RICS's evidence. They say "Government budget procedures are not helpful". They suggest that inflexibility in capital asset management and lack of

24 May 1989]

Mr P McMASTER and Mr B E FURMSTON

[Continued]

[Baroness White *Contd*]

financial delegation pose problems to project managers. Do you feel that if a country has once had experience of our trying to do things when they are up against these problems it may look to some other country that is perhaps a little more flexible?

(*Mr Furmston*) I am not quite sure what the RICS is getting at. I think all government financing has some problems to do with spending allocations of money within particular financial years and so on. I think one can overcome that without causing really severe difficulties. One must be careful not to carp too much as a surveyor. Other elements of aid are important and must be done. It is right and proper that aid should be seen as aid for development. When aid is given it is right and proper that one should seek some form of return that will contribute to the development of the country and perhaps help to pay for the inputs of the aid. That puts survey, however, along with other forms of data collection and infrastructure information—I am thinking here of meteorological information and river gauges and suchlike which are all services that do not have an immediate economic return—at a disadvantage, yet they are still very vital.

Lord Shackleton

552. You did not answer my question as to how far overseas survey are concerned with building up geographic systems. This brings me to the whole question of satellite remote sensing. When Ordnance Survey gave evidence to a previous Sub-Committee they made the rather surprising answer that they saw no prospect of future use of satellite remote sensing information. I took this to be a reference in that context to the United Kingdom. Nonetheless, it was general. This is an area, even though the French have such a big lead in this field, where nonetheless there is a great deal of strength in remote sensing abilities in this country for data collection and use. Do you have any activity in that area and how far are you able to develop the sort of philosophy in overseas countries that you have been seeking to do through the new association with which you are very much concerned in this country?

(*Mr Furmston*) One of the few remaining major projects is producing 1:100,000 scale maps of the north east of the Yemen Arab Republic generally by satellite imagery using SPOT.¹ In that field I would claim that we are as far ahead as anyone in the world in developing the use of SPOT imagery for series mapping. Many people in the world are very far ahead with producing experimental maps of one kind or another. In a way it is quite easy to select a particular area that has particular features, to make a map of it and to say, "I can make a map from remote sensing". It is much more difficult if one is trying to produce a whole series of maps in areas parts of which are not so friendly to remote sensing techniques. We are using imagery and it has a great future for mapping sparsely populated countries. It still has limitations, of course, in times of cloud cover. One

still cannot see through the tropical cloud and therefore many countries have no available imagery.

553. Will the new satellites be of any use, microwave?

(*Mr Furmston*) I think possibly. The trouble is that it is a bit like side-looking radar which has been available for some time and from which reconnaissance mapping of places like Brazil has been produced, but it is very difficult in the sense that interpretation of the imagery is inconsistent. A lot of the microwave type of imagery makes things look different depending on which direction one is looking. That makes it difficult to be positive about identifying features or particular vegetation on the ground.

Lord Walston

554. I want to revert to an earlier question of Lord Shackleton concerning the French activity in this field as a whole. There has been the implication that from the point of view of the French national economy it has been money well invested and they have got their money back as a result of projects that arise from their activities in this field. Do you think there is any substance in that suggestion? If so, would you say that we are losing out from the point of view of our national economy by not taking a more aggressive line ourselves in this respect?

(*Mr Furmston*) There is clearly value to be obtained in a diplomatic sense at least and in a trading sense from having a friendly presence in countries. The French are very good at that element of it. The French too certainly do quite well out of some of their equipment gifts, which I suppose like much aid actually subsidises a French manufacturer just as much as it aids a developing country. Regrettably we have no survey manufacturing industry in this country. Therefore, we cannot exploit that particular corner. I think the French largely use aid and survey assistance as an arm of a kind of friendly quasi-diplomatic approach rather than for an economic return directly because the quasi-diplomatic approach wins friends and increases trade, I am sure.

Chairman

555. In the memorandum you seem to distinguish at one stage between mapping and land information. Land information means, for instance, the finding of mineral resources and the like by survey?

(*Mr Furmston*) Not entirely. The main meaning of land information overseas is connected more with land tenure and with the registration records of who owns what and where.

556. Does your survey attempt to estimate the mineral content of the land, the suitability of the land in any way for particular purposes?

(*Mr Furmston*) Not at all, and never did. The Directorate was always a topographical survey outfit, but we work in the cadastral field of land ownership and give advice and help there.

(*Mr McMaster*) The geologist, the soil scientist and the forester are lost without maps. That is badly put. I mean that without maps the results of his work cannot be depicted.

¹ SPOT is the French remote imagery satellite *Système Pour l'Observation du Terre*.

24 May 1989]

Mr P McMASTER and Mr B E FURMSTON

[Continued

[Chairman Contd]

557. It is a basic tool for his work, and he does the sort of work to which I was referring?

(Mr McMaster) Yes.

Lord Butterworth

558. There is a passing reference in the memorandum to the realisation of the importance of land tenure to development. Is it not surprising that this does not require greater precision of mapping and does it not give greater priority to demands from developing countries for better maps?

(Mr Furmston) Not necessarily for maps because most overseas countries in general, and most overseas developing countries too, rest their land tenure on individual surveys of parcels of land. These are carried out quite independently very often and not through a map as we do in this country. We in this country are almost unique in the world in having developed the topographic map as a cadastral tool and our land is registered and recognised by the physical features that appear on a topographic map. In assisting the land tenure side, the property survey side, there is a bit of a mixture. I believe that we in Britain have hit upon a very effective and economic way of recording land ownership. The Directorate did quite a lot of work for ODA in extending this so-called English system to some Caribbean islands and assisted with some very large programmes in Kenya and smaller but still substantial programmes in Malawi. Most of those were based on the English idea of having a map recording comprehensive land ownership in an area. There is no question in my mind that the need for assistance is there. I have recently been advising in Zambia where there is currently something like a 20-year backlog of cadastral surveys. This effectively means that no one can obtain a formal lease.

559. We need a marketing operation for our system, do we?

(Mr Furmston) Yes, in so far as it is a possible solution. One has to be a little cautious because much of our system rests on the fact that we live in a very settled and physically well-marked environment; our hedges, walls and fences are pretty permanent features.

560. And that could not be exported to a place like Zambia, shall we say?

(Mr Furmston) No, it cannot, but what can be exported is the legal principle that a boundary need be defined only in general terms rather than by a specific mark.

561. I see. The area of ownership becomes a kind of metaphysical concept almost?

(Mr Furmston) To an extent probably, yes. Perhaps I may answer Lord Shackleton's question about geographic information systems. We would be active in encouraging the idea of comprehensive information systems, of which land survey is a part. The idea of an information system is very relevant in connection with the cadastre and land ownership. I have some reservations on the score of the technology involved. It is all very well to work in terms of computer-based high technology systems in this

country, but it would be a disservice to introduce these into many overseas countries, some of which do not even have a steady electricity supply. One has to go carefully in that kind of region. What I would like to see is that whatever manual systems are developed now are developed with the thought in mind of eventually putting them on computer. I believe the logic associated with computer systems is a good aid to clear thinking in developing an administrative system.

Chairman

562. The Government have shown great interest recently in the importance of the environment in this country and worldwide. Do you think that will have an effect on the attitude of Government and ODA particularly to your work and might result in providing you with more resources, which you would clearly like to have?

(Mr McMaster) I think it will have some effect, but I am not sure it will be very great. I believe the main environmental worries they have are more global in the sense of things like ozone layer depletion, acid rain, reduction of forests and desertification in Africa and so on. These require small scale maps, a point that the noble Lord Shackleton was making. Satellite images there are very useful indeed.

563. But the whole problem of afforestation or deforestation and re-afforestation is very important and comes into your field to some extent?

(Mr McMaster) To some extent, yes. Also of course there are environmental factors in the development of a country as to where they place industrial zones and such-like. To that extent it will indeed have some effect.

Lord Walston

564. Do you work in collaboration with or on behalf of (being paid for it) private enterprise, or semi-private enterprise? For instance, when the Commonwealth Development Corporation decides to develop a large area of land in the southern part of Indonesia, would you help with the surveying of that or do they do that entirely separately?

(Mr McMaster) We are delighted if we are asked to help; and if we were asked we would.

(Mr Furmston) We work with the private sector in two ways. We work with the survey private sector in the sense that much of our work for the last two decades has been contracted out to the private sector and managed by ourselves. I am particularly conscious that often when multilateral agencies become involved in survey work it is as a minor part of a major project. The project might well be to build a railway from A to B, but that has implicit in it a survey content. We would like to be involved with the survey content. We have worked to develop links with consulting engineers and contracting firms in the hope, and realisation indeed, that we can collaborate with them in joint bids for contracts of that nature.

24 May 1989]

Mr P McMASTER and Mr B E FURMSTON

[Continued

Baroness White

565. So you get on the bandwagon by that method rather than by direct application?

(Mr Furmston) We certainly try to. I have to confess that we have not been very successful. I would claim that it is not entirely our fault. We know

some of the bids with which we have been associated have failed and it is not necessarily because of our small survey bit; it is because of the major input.

Chairman] Thank you very much for answering all our questions so well and for your memorandum.

Memorandum by Water Aid

1. Introduction

1.1 More than 1,000 million people in the Third World lack reasonable access to potable water; about 2,000 million lack any form of sanitation. As a result illness associated with deficient water and sanitation is as widespread as it was in this country before the great developments of public health engineering more than a century ago. Such illness causes the death every day of 30,000 children. And it is a major drain on limited health care resources (eg absorbing at any one time half the world's hospital beds).

1.2 WaterAid is an unusual response to those needs. It is a voluntary organisation based on the workplace. It identifies goodwill and know-how among the institutions and the people of Britain's own water industry. This leads to voluntary offers of money and/or technical assistance. WaterAid then applies those resources to practical improvements within the Third World.

2. Contents of this Memorandum

2.1 Section 3 will briefly summarise WaterAid's growth since its inception in 1981. Section 4 will discuss essential features of overseas technical aid. Section 5 will consider further developments and will suggest ways in which WaterAid's impact could be increased, and similar organisations could be created. Section 6 summarises recommendations to the Select Committee.

3. WaterAid since 1981

3.1 1981 saw the start of an international Water Decade, sponsored by the United Nations. A number of senior people involved in this country's water industry (chairmen and others of various Water Authorities and Water Companies; leaders of relevant professional institutions and trade unions) created WaterAid as a response to that Decade, and registered it as a charity.

3.2 WaterAid has grown from a first year income of £25,000 to a recurrent income now exceeding £2,000,000 per annum. More than 20,000 of the industry's employees support it each week or each month by voluntary deduction from pay. More than 100,000 of the general public respond each year to appeals which they receive with their water rate bills.

3.3 The organisations of the water industry have not been able to provide cash support, but they have nonetheless been centrally important to WaterAid's growth. They have created a climate which has encouraged participation (eg they have adapted their procedures to allow the payroll deductions and consumer appeals mentioned above) and they have helped WaterAid contain its overheads (eg by providing free head office accommodation and services). The Overseas Development Administration has welcomed the industry's initiative and is providing pound for pound grants (now circa £500,000 per annum) to match various voluntary fundraising activities.

3.4 Other than money the further resource which WaterAid can offer to development is technical assistance on volunteer or other sub-economic terms. The deployment overseas of experienced water engineers has been of value not only in the projects to which they have been attached, but also in validating to a growing band of supporters in Britain the professionalism and effectiveness of expenditure.

3.5 Overseas projects completed by WaterAid or underway are directly benefitting more than a million people in the Third World. They are concentrated in nine countries in Africa and Asia (mainly Commonwealth, and including some of the very poorest).

3.6 The Water Decade ends next year, but WaterAid proposes to continue, and indeed will seek to expand its activities throughout the 1990's and beyond. Much remains to be done. I have recently become a member of a new committee, under the auspices of the World Health Organisation, charged to maintain and preferably increase the momentum built up by the Water Decade, and to plan a global water strategy for the 1990s.

4. Essential Features of Overseas Technical Aid

4.1 Why has WaterAid found so much goodwill among many of those involved in the water services of our own country? As Director since its inception, I incline to the following explanation.

*24 May 1989]**[Continued*

4.2 Many of the professionals in the water industry have a real sense of public service. They joined it not to make their fortune but from a commitment to public health engineering. But they find that the really pioneer challenges of public health engineering were met in this country generations ago.

4.3 WaterAid has benefitted from this. It has offered an outlet to the sense of altruism within numerous of its water industry supporters, attaching that altruism to overseas projects which make hard practical sense. Later in this section it is argued that many features of those projects should increasingly be features of bigger and more "official" aid programmes; and in the last section of this paper that other industries, beyond water, could spawn initiatives similar to WaterAid. But first I discuss what constitutes the hard practical sense referred to above.

4.4 In Britain the water industry calculates that the replacement cost of our current water and sewerage infrastructure is at least £1,000 for each man, woman and child. WaterAid has from the outset recognised that were it, in the Third World, to support levels of service in any way comparable to our own, that would be a serious disservice to real development. Such levels cannot remotely be afforded. So WaterAid has concentrated always on improvements at an all-in cost of less than £20 per person, and quite often less than £5 per person. Inevitably this has taken it into a methodology greatly contrasting with that with which its UK supporters are familiar in their day to day work.

4.5 Third World is sadly littered with well-intentioned development projects of earlier years, now fallen into disuse. Among the most frequently prevailing reasons for this are:

- (a) that the benefitting communities played no part in determining what the project should be about, nor in its physical implementation; and hence has felt no sense of "ownership" or responsibility for what resulted.
- (b) that complex technology was introduced, beyond the capacity of local personnel to maintain it, and dependent on foreign exchange (frequently in practice unavailable) for imported fuel and spares.

4.6 WaterAid has sought to overcome (a) and (b) above by insistence upon maximum self-help community participation, and upon simple and sustainable technology. Typical of the projects it supports are: protecting natural springs from pollution by their users; sinking properly lined and capped hand-dug wells; construction by labour-intensive methods of gravity-flow supplies; introduction of hygienic but cheap and non-waterborne sanitation. These are real improvements, and they can be achieved at the very low order of cost mentioned earlier.

4.7 It would however be unwise for WaterAid to deploy all of its resources on such direct and practical work. For a major constraint in this and many other aspects of Development is shortage of skilled local manpower and of effective local organisations. Money has to be spent on practical training and staff development, and on various other initiatives to strengthen local organisations which can then be a catalyst to more and more self-help activities in their own countries.

4.8 If Britain is to maximise the value of its technical aid to millions of ordinary people spread across the vast spaces of the Third World, the kind of work mentioned in 4.6 and 4.7 above needs to be multiplied many times over—not only by WaterAid but by many other and larger agencies too. And in WaterAid's experience it is this approach to aid which public opinion in Britain will support. It is directed at the very poor who are in greatest need, not at those who already have a certain level of service. It is attempting to create basic improvements, capable of being sustained after the donor has departed. And it is not just a hand-out, but requires those who will benefit to participate in all realistic ways.

4.9 Within WaterAid's numerous water industry supporters, there is full endorsement of the policy outlined above. I am not aware of any who would prefer WaterAid instead to be transferring British technology and British methods to Third World situations. The Select Committee may feel that this is revealing, as they consider what kind of technical aid the public will support.

5. Further Development

5.1 There are a number of ways in which WaterAid's experience can be replicated or extended. In several other countries there has been interest in starting sister organisations, and these now exist in Canada (Water Can), France (Solidarite Eau) and in as yet only embryonic form New Zealand (Water for Survival). The American WaterWorks Association has asked WaterAid to address its June 1989 conference in Los Angeles on ways in which a similar organisation might with AWWA support come into being there.

5.2 It is also arguable that there are other industries in Britain (eg education and health) professionally concerned with matters of great importance to development, and with employers and employees who might well be drawn, as have those in the water industry, into new specialist charities mainly based on the workplace.

5.3 Successive British governments of the 1970s and 1980s have acknowledged that development charities can achieve things which government itself, necessarily working on a government-to-government basis, cannot. They can help indigenous community groups and non-government organisations, and thereby achieve levels of community participation and self-help much less easily mobilised by the state.

24 May 1989]

[Continued

5.4 So in various ways, including the joint funding mentioned in 3.3 above, the government through the ODA has been supporting voluntary organisations such as WaterAid. My own experience, not only at WaterAid but previously as Director of Voluntary Services Overseas (VSO), leads me to the view that ODA has applied such support with increasing skill and sophistication over the years—properly safeguarding the use of public money, properly requiring hard evidence on what is achieved, but eliminating unnecessary bureaucracy.

5.5 ODA could however go much further. Its support for British voluntary organisations absorbs about 2 per cent of the official aid programme's resources. Other countries devolve much more of their aid resources to such voluntary organisation programmes (eg USA and Canada circa 10 per cent; Holland and West Germany circa 6 per cent). ODA should be pressed to spend a significantly higher proportion of its budget in this way. WaterAid and others would be capable of using considerably more money on further overseas projects of the kind described earlier in this paper, and without increasing the ratio of all expenditure spent on UK administration (which, in the case of WaterAid, has never exceeded 8 per cent).

5.6 There is also a strong case for ODA developing a greater sense of what might be called sector priority in its aid disbursements. Some Third World needs are particularly basic and particularly acute, and water is one of them. ODA should be asked positively to identify such priority needs and set out to concentrate a growing proportion of its aid upon them.

6. Summary of Recommendations

6.1 The Select Committee is invited to recommend that ODA in particular, but also other agencies where applicable, concentrate technical aid resources much more than at present upon:

- (a) projects involving major participation by those who will benefit from them, and with technology selected for its sustainability (para 4.6–4.7 above);
- (b) strengthening local organisations by staff training and other means (para 4.7 above);
- (c) spending through British voluntary organisations rather than on their currently mainly bilateral government to government or multilateral basis (para 5.1–5.5);
- (d) priority sectors within development (eg drinking water/sanitation) addressing major and fundamental human needs (para 5.6).

David Collett
Director, WaterAid
March 1989

Examination of witness

Mr DAVID COLLETT, Director, WaterAid, called in and examined.

Chairman

566. Mr Collett, thank you for your interesting memorandum. Would you like to say a few words by way of introduction on the work that you do?

(Mr Collett) Thank you, my Lord Chairman. I tried to stress in the memorandum that what is unusual about my organisation is its degree of association with the institutions of the British water industry. I tried to indicate some of the ways in which the water industry, fairly widely defined, has found some practical ways of getting behind WaterAid and helping WaterAid with its work. What has evolved for what was initially a very small organisation—it started from nothing eight years ago—is the need to choose amid an almost infinite variety of things one could back overseas. Our choice has tended to be not the transfer of British methods but the support of indigenous institutions and locally appropriate methods which are frequently very different and very much less sophisticated than we take as our norm in this country. I have found it interesting to see how much that has itself absorbed and won the support of people in the water industry. I said in the paper

I am not aware of anyone in the water industry who would prefer WaterAid instead to be setting out to transfer its methods. Somehow I think we touch a chord with a lot of people because, at a time of considerable change and stress in the water industry, we are back to first principles and I believe they have a gut response and allegiance to that.

567. Can you say a word about your relationships with ODA and their activities?

A. Our relationships with ODA have grown through the predictable channel of ODA's Joint Funding Scheme. We are now receiving about a quarter of our total annual income from ODA through the JFS. I personally think it is one that could be taken further. I made the point in the memorandum that having experienced ODA from several different angles—I was once one of their advisers working overseas in their employ and for some years I was director of VSO, which receives a great deal of its UK income from ODA, and now I am in an organisation that receives support through the JFS—I think that ODA has learnt a great deal about how to relate to voluntary organisations, how to get some

24 May 1989]

Mr DAVID COLLETT

[Continued]

[Chairman Contd]

benefit itself through voluntary organisations doing things which it is more difficult for the Government to do, and I think it protects the public interest without jarring in the way it asks the voluntary organisations to work. I think it has done well in that for quite a few years.

568. Do you find their procedures generally flexible enough to work with a voluntary organisation like yours?

A. Yes, I find them flexible enough. I think inevitably in the infancy of WaterAid when detached people may have said, this organisation will just die in 12 months' time, that was a time we could have used a bit of pump-priming support more than when we had got past first post, and we did not get it at the start, and I understand why not with public money. In the paper I suggested that WaterAid's experience in the water sector could arguably be replicated in, say, the health sector with all the people of the National Health Service, or in the education sector with all the people of the education industry in this country. To do that, if anyone thought it worthwhile, needs some core of people, some little pot of money, however small, that gets the organisation going in the first place. WaterAid had that with a group of people then involved in the water industry at high level who wanted to see WaterAid flourish. It is very difficult to see it happening in the abstract in another industry. I have sometimes wondered whether ODA, if it wanted to see such a thing happen, could judiciously invest some small money to get going an "education aid" or a "health aid" both of which I think would have incidentally a considerable morale value among the employees of those industries. I am seeing exactly the same point occurring in the effort in the States to replicate what we are about. Next month the American Waterworks Association has a conference which WaterAid has been asked to address on the setting up of an American WaterAid equivalent. There are still no signs of whatever one wants to call it—the political will—in a huge organisation like the American Waterworks Association to put in that small amount of seed money that would get the thing running and make voluntary supporters feel that something could be done. I think we were fortunate in having that. In WaterAid we have watched the progress towards privatisation of the water industry very carefully to see what the implications for us might be. At present the implications seem to me to be for the good and not for the ill.

Baroness White

569. That is gratifying. I was there when the initial meeting for WaterAid took place with David Kinnersley and the others. It is quite true that one had an easily identifiable objective and a reasonably good organisation with which to start. That it has succeeded is marvellous. Conditions were more favourable than they would be in broad and diffuse fields such as education or health?

A. Yes, I think that is true, but I still think personally that it would be a very worthwhile and interesting thing to be tried in those other sectors. I use those two just as examples, of course.

Lord Walston

570. You have mentioned the help that you have had from VSO, with which you had close connections. Something which many of our witnesses have mentioned is the rundown of people with overseas experience, former colonial officials and so on. With the new type of volunteer, the two year post graduate at least, do you think that there is a possibility of looking on some of the returned volunteers after they have had experience here in this country in whatever profession they take up to fill the gap left by the former colonial civil servants?

A. Yes, my Lord Chairman, I do, and I think that is happening in a very substantial way. I presume ODA could provide a figure on how many TCOs are ex-volunteers. I remember when I was director of VSO getting a letter from the then director general of the British Council saying that the Council had just made its 100th ex-volunteer appointment, and that was 10 years ago. In my organisation we are very small compared to the ones about which we have just been talking, but we now employ 16 full-time resident staff overseas, and nine of those today are ex-volunteers. There is no doubt that a very important secondary rationale for VSO is as a training ground for the need you mentioned. The ODA used to have a thing called the corps of specialists. It was another effort to meet the need to which you refer, the rundown of traditionally experienced people in the tropics and the need nonetheless to have a bank of people available to get involved in technical roles overseas. I have often wondered whether part of VSO could be structured so that it was more deliberately the first rung on an overseas career ladder. I am not sure that the career ladder is long enough for a life time; I am not sure it would be a good thing if it was a life time. However, some sort of effort to see volunteer experience, other NGO experience with people like ourselves or the Save the Children Fund and experience in ODA all banking up and each of relevance to the other seems to me a system that could be taken a little further than it has been formerly.

571. I have another question. I am not quite sure how to phrase this. Your organisation certainly stems from a desire to do good not for hard-headed commercial or political or economic reasons, and it is carrying on with a very large element of "do-gooding". Do you think that makes it more difficult for other organisations to follow your example? You talked of the American water industry. Do they rather shy away from "do-gooding" or is it possibly an asset to be associated with something of that nature?

A. I believe that one has to clear one's mind in an organisation like ours as to what one is primarily trying to do. I accept the noble Lord's point that we are in the broad sense trying to do good rather than to meet commercial or other needs in this country. I think organisations that confuse that or try to have their cake and eat it frequently just do not move. Is it a constraint in the States at the moment? I think it is. I think the documents they have given themselves to consider in the American Waterworks

24 May 1989]

Mr DAVID COLLETT

[Continued]

[Lord Walston *Contd*]

Association do not bring this point out clearly. They talk about the world's water needs and 100 things that might sensibly receive investment. They do not clear their minds on which within those 100 things—the 100 is illustrative, not precise—the man in the street can sensibly be asked to put his hand in his pocket for. I think that is what voluntary organisations have to ask themselves all the time. It is a constraint in some cases but not always. In Canada, for example, they have an equivalent to ourselves called Water Can and they are operational.

Baroness White] At the outset of course one fitted in with the United Nations Water Decade, which provided a conceptual framework to some extent.

Lord Butterworth

572. At paragraph 4.6 in your memorandum, if I have understood it properly, you distinguish between direct and practical work and give some interesting examples of what you have done; and paragraph 4.7 is on training and staff development. How do you decide which direct and which practical work to go for?

A. In an almost evolutionary way: I think we determined, fairly early in our life when our organisation was very small, on three countries where we thought for different reasons there was a role for us to play.

573. Those three countries were—?

A. Sierra Leone, Kenya and Uganda. I think our rationale in each case was different. You probably do not want me to go into it in detail now.

574. Take Sierra Leone.

A. If one takes Sierra Leone as an example, I think our rationale was a complex first of acute need—eg, to quote one statistic, the number of children dying before their 5th birthday in Sierra Leone is higher than in any other African country and much of this is water associated. The second reason I think was the feeling that other organisations which might have been filling the role we thought we could fill were not there. UNICEF, which often does this sort of work, was absent and OXFAM was absent.

575. What I am interested in is how you home in on particular projects in Sierra Leone. If a number of projects come up, how do you decide which you will go for?

A. If I may go on using that as an example, one talks to the government, one talks to other experienced aid organisations in the country, one gets a picture through visiting—an engineering adviser of ours plus my own knowledge of Sierra Leone over the years—of the sectors in which one could operate; geographically, the areas where maximum need exists and no action is going on; the government's own priorities in this case because we were clearly going to move towards working in direct partnership with the Government and not with a voluntary organisation. In consultation there it led us to feel that we should concentrate in one part of the country where a particular methodology as far as water supply was concerned—very simple gravity fed

supplies with no electrical and mechanical dependence—would be feasible and was attractive to us, given the principles of self-help that we were holding and the principles of minimal maintenance and so on; and gravity supplies meet those features more than most. Therefore, with the encouragement of people in Sierra Leone and a feeling that we were not duplicating anything anybody else was ready to assist with and with a welcome from the government—that particular Ministry was in low morale but there were people in it who wanted to do something and who did not want to be incapacitated by lack of petrol from getting into their vehicles and getting out to the project areas and so on—we have evolved in that country a programme in eastern province where with the Government we are able now to see radical water improvements for about 30,000 people each successive year and associated measures of sanitation and health education. That builds up. We are above 100,000 people in completed projects there and one is talking of a province where there are nearer to one million people, but one is a fraction of the way. The gravity fed approach is not applicable throughout the province. There are perhaps five more years of the sort of work we have been supporting in the last three or four years, still to be done.

576. In paragraph 4.7 you say rightly you do not want to do wholly practical work but want to be involved in training and staff development. I wondered whether in that field you had any relationship with the British Council? Are there any comments that you would like to make in regard to your relationships with the British Council?

A. Our links with the Council are quite slight. They are goodwill links. I have known a lot of the British Council people in the past in other jobs that they have done. Our access in the spirit of that paragraph and the Council's access I think are different. I think they might be called complementary. Let me illustrate this and switch out of Sierra Leone for a moment and consider countries like Kenya or Nepal. In those countries we are working not with the government itself but (with the government's approval) with a significant local non-government organisation. I would argue that that is a particularly desirable thing for WaterAid to do where it is possible. In Sierra Leone it was not realistic; there was not a local voluntary organisation ready to go. In these other countries there has been. I believe supporting non-government organisations in countries such as those we are discussing has several advantages over and above the purely operational one. In what are often one party states, or countries with governments not democratic in the sense that we know in Britain, local non-government organisations are a step towards a pluralist society that does not leave every responsibility to government and where alternative leadership, not necessarily dissident leadership, can develop. There are people in other words who want to do something, who acknowledge the limited resources of their own government and who want to do something to improve their own lives. They do it through non-government organisations. I think it is WaterAid's job to back them where they are viable.

24 May 1989]

MR DAVID COLLETT

[Continued

[Lord Butterworth *Contd*]

577. By this kind of relationship how have you developed training and staff development in, let us say, Kenya?

A. In Kenya we met the Kenya Water for Health Organisation, a non-government organisation that is national in scope and blessed by the Ministry of Water Development and given free offices by that ministry. We met in what I think was its embryonic state about five years ago when it had a full-time director, an office clerk and a driver for a car that UNICEF had given to it. And little else. WaterAid judged that to back that organisation and help it develop its activities would make sense; that it had the integrity, the will and the political relationships in its own country to do what its constitution allowed, which was to become the principal Kenyan non-government organisation to mobilise the spirit of what Kenyans call "harambee"—pulling together, and self-help—in the villages to improve water. We have supported it in different ways—for example, the attachment for the last four years of British engineers to give it a technical capacity that it did not have; the identification over the last three years of what was initially one and is now four Kenyan engineers working as counterparts; the need—a loaded thing to do—for us to fund those Kenyan engineers in these years, and funding that sort of cost is a dangerous thing. The end of that road is always more difficult to find than funding direct project costs. The director of the Kenya Water for Health Organisation, a very able and forceful woman, not by experience a great manager, needed as it grew to become a better manager. We have a relationship with the Nuffield Foundation where they fund visiting fellowships to Britain to give training. In this case we used it for management training purposes. As it has grown, and it is now employing between 60 and 70 people—

578. You still have some Nuffield people?

A. We have a flow of several of these fellowship foundation people every year.

579. Do you organise any training in Kenya itself and how is that organised?

A. I think the principal training is generally—not easily added up—on the job. That is the essence of it, I am sure.

580. By your engineers?

A. By our engineer in the first instance; and increasingly by his own Kenyan counterparts and their Kenyan colleagues. In addition there has been more formal training of managers. Workshops come together to discuss aspects of how to make water developments effective. They are sometimes looked at as technical problems where the problem is finding the right place to dig the well, whereas in fact they have to be regarded as very human problems in regard to the motivation of people and the attitudes of people to care for minor improvements in their villages. That asks of engineers and others a range of thought that is not always part of their job in the west. In Sierra Leone there have been several quite significant training measures switching people from one country to another.

581. Do you find the local education institutions of any help or support in training? You said a moment ago that it is done—and I accept this—mostly on the job. Because you said that one wonders whether indeed universities, colleges and so on take an interest in this kind of training?

A. I am afraid that in general I would say not enough. Normally they are not adaptable enough and they have too many formal responsibilities upon which their eyes are glued and they cannot easily take up what they think of as a fringe need at which we are pointing. There are exceptions to what I have just said. For example, a research and development institute in Zimbabwe called the Blair Laboratory has been something of a model in how to develop new, basic technology in the water and sanitation sector and how to bed it into Zimbabwean organisations and the Zimbabwean community. We have been involved a little with the Blair Laboratory, not very much in supporting its on-going work but more in helping transfer its conclusions to other countries that could learn as much from it as the Zimbabweans have.

Baroness White] In Kenya you had a certain amount of social structure, quite a strong women's organisation, for example, in addition to the board of health.

Lord Thurlow

582. In the context of your relations with other agencies, do you have any comments on your co-operation with Hydraulics Research, Wallingford? We had a very interesting paper from them covering problem solving, research and projects. Do you work with them?

A. I would have nothing to say about their work because I know too little of them. Our own work is so much grassroots and micro and low in its technology that the inter-relationship between the two organisations has been minimal. We are operating in different contexts and at different levels.

Chairman

583. You suggest that ODA should develop a greater sense of sector priority. I was not quite sure what that meant. Do you feel that would make a better use of resources and that it is a question of priorities?

A. I would like to see ODA more precise on what it wants the aid programme to achieve.

584. To come to you and say, "We think you could do a big job *here* and *here*", and that would be the priority?

A. No, I am not thinking of it in terms of WaterAid at all. I do not particularly want to argue that ODA should adopt the more precise policy—I think it was a more precise policy whether one agrees with it or not—of the 1970s, but there was a rather deliberate effort to concentrate aid in the time of the last Labour Government on aid to the poorest. There were publications on that theme. I am not saying it was a 100 per cent switch and I am not saying it was wholly successful, but it was a policy objective. I do not know whether there is now a similarly clear

24 May 1989]

Mr DAVID COLLETT

[Continued]

[Chairman *Contd*]

policy objective; if so, I do not think I have spotted it. I would argue that within the different objectives one can see for aid the fundamental one which the British public will support is trying to help some of the abject poor of the world find their way out of their poverty. If one is doing that, then I think one has to start saying, what are the principal constraints on those people that are holding them down in that poverty. I would argue that water is *one* of those things that are absolute indicators of the poverty of the poor.

585. So you would like to see ODA describe more clearly a general policy into which you would fit and make your contribution?

A. Yes. I would like to see that policy geared to human need. I think water would figure in it. Whether then they developed their own spending in that sector or did it through voluntary organisations is a separate thing.

586. Is your feeling then that some of ODA's activities are not directed to human need but are directed to some other aspect?

A. I think some are more precisely than others. May I give the Committee an example of something that disappoints me?

587. Yes?

A. The noble Baroness Lady White referred to the current Water Decade, which ends next year. You will not be surprised that a number of people worldwide have been talking about how whatever momentum is developed—and it developed some—should be maintained or taken further in the 1990s—should there be another decade and so on. There has been discussion—and ODA has been part of this—on what follows the Water Decade. Under the auspices of WHO there is now what is called the 1990 committee, which is vested with the responsibility of thinking forward for the 1990s priorities in this sector. Apart from WHO itself, the United Nations Development Programme and other multilateral bodies and a number of bilateral bodies bid into that committee saying, we would like to be on it; the United States, French, West German, Dutch and Canadian governments are there. I was disappointed that ODA did not want to be much involved. It sat in on the discussions but does not appear to be particularly keen to play a bold part in a sector like this in planning a global plan for the 1990s. I think ODA is much more reactive than that. It tends (there is merit in this) to say: we will see what overseas governments want us to do and judge whether we want to respond or not. I am back on my idea of sector priority, my Lord Chairman: I would like to see ODA saying water is important and they want to be at that table. Their absence from that table opens the door for WaterAid. WHO and the others want to see the non-government organisations of the world, whether of the developed or the third world, somewhere in that context. I sit on that committee but I would rather see ODA sitting on it because ODA has a position that WaterAid does not.

588. Why do you think they have decided not to?

A. I can only give the Committee my opinion. I

have no official view from them on this. I think it is what I have described in the paper, this lack of a concept of sector priority. I quote the Canadian equivalent roughly to ODA, CIDA. CIDA has a small team of staff who are charged by CIDA with pushing forward (these are my words) its contribution to the water sector. The head of that unit very much sees his job as playing a part in this international forum on CIDA's behalf. I do not think ODA works that way, and I wish it did more.

589. Other witnesses have described a decline in the availability in the United Kingdom of staff because many were ex-colonial staff who are now getting old. The noble Lord Butterworth talked about the training and education side, which is important. Are you seeing any effect of this reduction in the availability of trained colonial staff experienced in overseas matters? Does that affect your work at all?

A. No, I do not think that affects our work, although I agree that that considerable body of people is now of course very largely history. I think there are still technically qualified people who want to work overseas. I have no evidence other than in my own sector on how far there is an imbalance between supply and demand.

590. You do not see that as a serious limitation?

A. I do not think the decline in the number of former colonial people is a problem for us. What we are doing is so much working through indigenous organisations that we need a younger generation to be the agents of that in so far as we put British people in. One matter to which I think ODA ought to turn its mind is the degree of pre-training, preparation or induction, whatever one wishes to call it, that it gives to its own people who work overseas. It has something real to learn from organisations like VSO on this. VSO is careful—in so far as one can get people thinking about how to work effectively in somebody else's country—and it tries and, in all normal circumstances, it has a real blitz on teaching language and has methods for trying to sensitise people to the different culture in which they will move. I think frankly that ODA's methods with much more expensive people, like technical co-operation officers, are sometimes perfunctory. They are sometimes vague. This was so with me, for example. This has been based on the assumption that what is being exported is their skills. I do not challenge their skills, but I think they have to be skills that are pretty rapidly adapted and expressed in an environment very different from what they will have worked in in Britain. When people are going to the third world perhaps for the first time in a technical co-operation capacity, I think there is a lot to be said for ODA investing more than it often has in the past in preparing them as far as one can before they go.

591. You mentioned earlier the importance of your work in helping in health, and you mentioned the early death of many children below five. In so far as you are successful that means that the expectation of life increases, the population increases and then come food problems. Is most of your work directed towards finding water for health purposes

24 May 1989]

Mr DAVID COLLETT

[Continued

[Chairman *Contd*]

or do you also help to provide it for irrigation of crops where it is needed?

A. It is a line that is never easily drawn. I think our principal impetus has always been into the drinking water supply for humans and what you rightly call the health context. I acknowledge that for us and other organisations like us to concentrate thus is at risk of creating another problem as people live longer. I think—though none of us could prove this—that as an organisation we subscribe to the view that historically there is a lot of evidence that as water supplies, sanitation and public health improve and as economic standards start to inch up, there is a considerable voluntary level of family size control. People may start having fewer children because the children are not all going to die so early. One hopes in a single sector organisation like ours that the numerous instances where that could be sustained as in what are now the more developed countries will apply again in the poorer countries of today.

592. Therefore it would be in very special circumstances only that you would get involved in digging wells or irrigation schemes and the like?

A. In irrigation schemes, yes, unusual circumstances if we are getting involved.

Baroness White

593. You have a social impact also, of course, particularly as in certain societies it is the women who spend a very large section of their lives carrying water and they may be released from that if you provide a more sensible method of local supply?

A. We have just felt that our work in Sierra Leone—if I may go back to that example—was sufficiently old for it to justify trying to do some sort of reasonably objective evaluation. The evaluation team consisted of a retired ODA chief engineering adviser, who has given us a lot of voluntary help in other countries but had no link with what had been done in Sierra Leone; and a retired chief social development adviser from ODA, Dr Spens. Dr Spens—

the noble Baroness Lady White may like to see her report—has been trying to look at the effect of these water projects on the time that women have for other things or on the health impact upon children. It is quite elusive, most of all in a brief evaluation, but at least she brought to it an objective and experienced mind in asking those questions and she produced no counter evidence and fragments of promising evidence.

Chairman

594. I have one last general question. What is the limitation to making a bigger impact from your work—is it solely financial or is it people?

A. I think the biggest constraint is financial. In the infancy of WaterAid we had to be very careful not to induce from overseas a flow of requests for our support which may have been very viable requests but which we knew we had not the resources to meet. Keeping that flow in balance with our resources was a rather easy thing to do in our infancy when nobody knew us, but as we have got bigger and things like sitting on this WHO committee have arisen the flow of bids—some of them we were not even prepared to look into because we know we do not have the resources to respond even if they look wholly viable—has grown a great deal and therefore if WaterAid could grow strongly in its resources for the next five years we would be confident of a capacity to identify fully viable things on which to spend those resources.

595. What is your budget now roughly?

A. We are on a budget of about £2½ million this year.

596. So you could easily use another £1 million?

A. Oh, yes. I have been talking to Comic Relief today as one step towards the extra million.

Chairman] Mr Collett, thank you very much. We are most grateful to you for answering all our questions so fully.

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TAKEN BEFORE THE
SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY
(SUB-COMMITTEE I)

Wednesday 7 June 1989

INTERMEDIATE TECHNOLOGY DEVELOPMENT GROUP LIMITED

Mr Frank Almond and Mr Adam Platt

*Ordered to be printed pursuant to the Order of The House of Lords of
29 November 1988*

LONDON

HER MAJESTY'S STATIONERY OFFICE

£3.80 net

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Memorandum by Intermediate Technology Development Group Limited**THE ROLE OF SCIENCE AND TECHNOLOGY IN OVERSEAS DEVELOPMENT**

The application of technology to Third World problems is a prime instrument of development because only by being able to improve their scientific knowledge and applying it to technologies which address their horrendous economic and social problems will the governments and peoples of those countries be able to overcome the enormous disadvantages under which they presently labour. Only by ensuring that they are able to do these things will donor governments and agencies be able to look forward to a time when they can reduce the burden of their contributions to overseas aid, in the knowledge that to do so will not result in yet another disaster.

Not only can the case be argued in socio-economic terms, politically, also, it is necessary to improve standards of living, reduce the gap between rich and poor, and increase the dignity of peoples, if the countries in which they live are to achieve stability. Important, also, is the growing realisation that poverty aggravated by a lack of scientific knowledge, increases very significantly the misuse of natural resources and the deterioration of the environment.

So, increasing the knowledge and capacity of Third World governments to apply technology is central to the issue of their development. But important questions remain: what technologies? for whom? and how are they to be applied?

The case for intermediate technology is based upon the premise that most people in developing countries are poor, and the majority of poor people live off the land in rural areas. As populations grow and demand increases, greater pressure is put upon the land, reducing its productivity and increasing rural poverty. More people become landless; they drift to the towns, reducing the viability of the rural areas and increasing the problems of urban deprivation. Having few if any assets other than their labour—and few opportunities to put that to productive use—the rural poor are net consumers, contributing very little to the already over-taxed national economies.

What is needed is a shift in emphasis, leading to a greater allocation of funds and other resources by Third World governments and aid agencies, to produce a massive injection of new forms of productive employment in the rural areas, using technologies tailored to the skills and capabilities of the rural poor. Only when they produce more will the poor have money in their pockets with which to pay for the essential services they aspire to, and which the rest of the world takes for granted. But to achieve this requires a new and enlightened approach to the kinds of technologies appropriate to their needs and limited circumstances.

The appropriate technologies in these circumstances will be intermediate, so to speak, between the cheap but unproductive technologies presently used by most rural communities, and the expensive, sophisticated technologies used in modern industry. Not only should they be designed to increase productivity, create new employment and spread wealth to the rural poor, the technologies used should help to preserve the environment, strengthen the fabric of disintegrating society and enhance the quality of life. These intermediate technologies are distinguished by the following characteristics:

- they are cheap: so that large numbers of poor people can afford to purchase, own and operate them;
- production systems are labour intensive, generating employment without reducing efficiency. They are capital-efficient rather than labour-efficient.
- they are simple to operate, without undue reliance upon imported skills and management systems;
- the goods and services produced are specific to the needs expressed by rural people themselves, so that they actually benefit, both from the work and the products or services supplied;
- maximum use is made of locally available skills, materials and resources, both in design development/adaptation and in operation, thereby reducing the costs of administration and transport, and the need for foreign exchange;

7 June 1989]

[Continued

- it follows that the most appropriate production systems will be decentralised and small-scale, stimulating the economy of the rural areas in which they are located.

CONCLUSIONS AND RECOMMENDATIONS

Intermediate technology projects, based upon the principles and strategies set out in this paper, have made a significant contribution to the means by which rural poverty can be tackled. Support to these and similar programmes should be maintained and increased.

In addition to its support to Intermediate Technology, the ODA should give greater emphasis to the promotion of appropriate technologies by its own departments, divisions and units; and it should consider measures for training its staff to be able to identify, plan and execute appropriate technology programmes. It should institute procedures to monitor progress in promoting such programmes.

The ODA should take positive steps to use its own experience in fostering appropriate, poverty-focussed technology programmes to influence other donor agencies—government and non-government—to undertake similar initiatives.

The ODA should also make it clear to Third World governments to whom it gives aid, that it will support poverty-focussed programmes using appropriate productive technologies. Guidelines should be drawn up to assist them identify and select projects for submission.

Among measures taken to encourage and promote the use of such technologies in countries receiving overseas aid, ODA should consider making specific provision for:

- training local staff in policy planning and project execution;
- financial support to local institutions to enable them to undertake market research into rural needs, R&D, and testing and demonstrating appropriate technologies for use by the rural poor;
- underwriting the costs to small scale rural manufacturers, where appropriate, to enable them to cover the risks involved in launching new technologies for the rural poor; and
- underwriting loan schemes for rural producers/consumers, to enable them to purchase and operate appropriate productive technologies.

Guidelines would need to be drawn up to ensure that these schemes are properly regulated and monitored.

The present triennial reviews of the Appropriate Technology Programme should be replaced by reviews every five years; and these reviews should include an examination of progress made in promoting appropriate technology through ODA's own departments and other agencies supported by ODA.

As a general principle, ODA should divert a greater proportion of its funds for use by non-government organisations, both in Britain and overseas, in recognition of the fact that:

- ngo's carry smaller overheads and therefore their operations can be more cost-effective;
- ngo's are able to use ODA funds to stimulate donations from public and other bi-lateral sources, thereby increasing the value of its original investment;
- ngo's are best able to identify and work through the most appropriate local institutions, which may not be the official government agencies nominated in bi-lateral agreements.

The effects of these measures would be reflected in the ODA establishment by an increase in specialists able to assess and monitor aid programmes proposed and executed by ngo's, and a decrease in directly employed TAOs and those employed to administer them.

INTERMEDIATE TECHNOLOGY: APPLICATION OF THE CONCEPT

INTRODUCTION

The Intermediate Technology Development Group Ltd (Intermediate Technology), is an independent development agency with charitable status, founded in 1965 by the late Dr E F Schumacher, to give practical proof of the concepts he enunciated in his best selling book, "Small is Beautiful: Economics as if People Mattered". In keeping with those concepts, it is dedicated to the alleviation of poverty in rural areas of developing countries by promoting the use of productive technologies which poor people can afford to purchase, operate and maintain for themselves, making them more self-sufficient. The charity is not engaged in welfare or relief programmes, nor does it administer grants to other agencies, concentrating instead on its own long term programmes which are of direct benefit to the rural poor.

Intermediate Technology is a small organisation with limited resources. It has an annual budget of about four million; and it employs about one hundred staff most of whom are professional engineers, economists and social scientists. In spite of its size, Intermediate Technology has acquired an international reputation, not only for its work but, also, for the development principles it advocates. The experience gathered over nearly 30 years work and, more recently, the relationship which has developed between Intermediate

7 June 1989]

[Continued

Technology and the ODA during the last decade, provide indicators which are relevant to any consideration of Science and Technology's role in Overseas Aid.

As a small organisation, Intermediate Technology has had to be very selective in the ways it distributes its limited resources. To this end, its strategy is:

- to promote with local people the development and use of selected technologies producing goods in local demand, which meet basic needs, and which are capable of wide replication; using them to demonstrate the validity of the concept;
- to concentrate work in selected countries, where the governments and local development agencies can be mobilised to support and sustain these pilot projects, helping to replicate them so that they have the widest impact on development in the rural areas, and on the economy as a whole;
- to back up its field work with information and advisory services in the form of publications, advice and help in response to technical enquiries, the provision of consultants, and training in skills and management.

Technology Development and Demonstration

The field programmes are the basis for all our work, providing us with the experience, expertise and confidence to advise and assist others. Early operations concentrated on pilot projects to demonstrate that small rural enterprises can be viable in the right circumstances, in the expectation that—if successful—local people and agencies would adopt them and they would become widely replicated.

For example: in 1971, the Government of Zambia, which was encouraging rural egg production as an income generator in rural areas, asked Intermediate Technology to design a small plant to manufacture egg cartons in order to transport the eggs from villages to urban markets. The only available production plants were foreign, too large for the demand, and too expensive. The problem of packaging seemed to be widespread, so Intermediate Technology, in association with other design and research establishments in the UK, and with loans provided from charity, developed a plant capable of making cartons from waste paper. It arranged for a Bradford firm to manufacture the plants against orders supplied, until the market had been established for a range of packaging products. The firm then took over marketing and supply, and further development of the plant, paying Intermediate Technology royalties to cover the initial development and marketing costs. Since then, the paper packaging system has been sold to at least 40 countries.

In the event, although in most cases the technologies were demonstrably successful, too often the benefits did not flow directly to the poor, profits being diverted into the pockets of urban businessmen. This led us to concentrate increasingly on projects identified, planned and executed by poor people themselves and their representative organisations, which would ensure that they could own and operate the technologies involved and that the benefits would flow directly to them.

For example, starting in 1982, we have been working closely with artisan fishermen's organisations in South India, to help develop improved craft and techniques in an area where the traditional industry was in danger of being destroyed by circumstances beyond the fishermen's control (eg lack of trees for building traditional craft, overfishing of coastal waters, competition from large scale trawlers). The project has involved the transfer of boatbuilding skills and techniques to the community in order to manufacture alternative craft from new materials, capable of fishing wider afield, and some 250 boats a year are now being produced from small boatyards. Assistance is also being provided to the fishermen's organisations to develop their own R&D capability, to train them in the use and repair of outboard motors, to improve traditional sailing techniques and to strengthen their capacity to lobby for more equitable fisheries policies.

During the execution of such projects we became aware that poor people are very vulnerable and hard to reach with benefits. The factors which prevent them from obtaining and benefitting from techniques are as much institutional as they are technical. Poor peoples' perceptions of risk, the value of work, and the relative usefulness of products, tools and equipment often differ greatly from those of the planners and engineers seeking to assist them. The value judgments which emerge from the consideration of these factors, set their priorities and dictate the extent to which they are prepared to adopt innovations.

And even when persuaded, poor people remain very dependent upon outside institutional factors, over which they have little control. The attitudes of their governments towards providing support mechanisms such as credit, access to raw materials and training, and markets for their products are crucial to their ability to benefit from the technologies available. Government policies are often insufficient, ill thought-out or contradictory, and their effectiveness is governed by the extent of administrative inertia that exists to implement them.

Intermediate Technology was asked by the Small Industries Development Organisation of an East African country, to provide consultants to define a programme for up-grading village cobblers, introducing them to new technologies to improve production and quality of footwear made from local hides. On investigating the market, the consultant discovered that the Ministry of Trade and Industry had

7 June 1989]

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recently concluded an agreement with an international shoe manufacturer to set up a factory in the capital to make and distribute nationwide, shoes made from imported synthetics.

A related problem is the difficulty of ensuring that successful enterprises are disseminated and taken up widely. Benefitting one small community is of no significance, unless the process can be replicated sufficiently to have an appreciable impact on the rural economy. Only by being able to demonstrate this impact is it possible to stimulate sufficient official interest to ensure that further resources are diverted into rural regeneration.

Influencing Policy and Mobilising Resources

In order to address these institutional issues, Intermediate Technology works closely with local agencies who can interpret community needs and who are best able to identify the constraints and the processes by which they can be overcome. We have established our own official representatives within the countries in which we operate, in order the better to understand the social, economic and political factors conditioning our work, to provide a focus of contact with our project partners, and as a means of drawing the attention of Ministers and others to new initiatives within their countries. We have found that our country representatives are in the best position, also, to help our project partners to mobilise financial and other forms of support from within the country, for joint projects.

Tackling these institutional issues necessitates, also, new attitudes and approaches by development staff; engineers have had to learn some of the skills of economists and social scientists; and the latter have to learn to appreciate the technical limitations imposed by the technologies with which they work.

Intermediate Technology's Support Services

Intermediate Technology is, in essence, an information organisation, using its limited resources to spread as widely as possible the lessons of its own experience so that others may be persuaded and helped to introduce their own appropriate technology programmes. We have, from the beginning, published information on available tools and techniques through our bookshop, mail order service and journals. In addition, we operate a popular technical enquiries service, liaising with industry, academic and research institutions in the UK to help field workers to locate tools and equipment and technical advice. Using these resources, and increasingly our own staff, we also provide consultants to Third World governments, and development agencies, to help them plan and introduce their own technology development programmes. We are retained on occasion, to help them to establish and to service their own intermediate technology institutions.

For example, at the request of the Ghanaian Government, and with funds supplied from the ILO, Intermediate Technology advised on and helped to establish a Technology Consultancy Centre, at the University of Technology, Kumasi in 1973. The Centre has been responsible for introducing a wide range of small production industries, including soap making, a factory producing nuts and bolts, gear cutting for vehicle spares, a general purpose foundry, honey production, etc. Intermediate Technology continues to provide technical and financial support, and is administering an EEC grant to a new network of six centres, modelled on the experience of the TCC.

More recently, in 1987, the Norwegian Government sought our help in mounting a seminar and exhibition on Intermediate Technology, for Norwegian businesses and aid agencies, with a view to mobilising support for intermediate technology as part of the Norwegian aid programme.

Training is an integral part of the technology transfer process in our field programmes, and the experience we have gained through our projects is helping us to mount or to support courses in skills and management training for other agencies, both in the UK and overseas.

For example, Intermediate Technology provides practical and general technical training to over 200 VSO volunteers a year at its Training Unit based in the Royal Agricultural Society's grounds at Stoneleigh. It has also run training seminars in Sri Lanka and Nepal on all aspects of mini hydro power programmes for project engineers and planners.

ODA AND INTERMEDIATE TECHNOLOGY

Intermediate Technology has had a long association with the ODA. In 1974, we sought and obtained funds for a pilot project to establish an Industrial Liaison Unit (ILU), to tap the resources of industry, academic and research establishments in order to tackle technical enquiries being received from the field. Experience showed that there is a large, willing, but relatively untapped source of expertise in Britain which, if properly directed and motivated can contribute practical solutions to problems encountered in developing countries, using appropriate technologies. Many universities and institutions now have their own units working on appropriate technologies, but they are generally under-resourced.

In 1977, we were invited to give evidence to a Working Party on Appropriate Technology set up by the then Ministry of Overseas Development. Based upon our experience, we recommended among other things the ODA should increase the scope and funding of the ILU, to enable us to develop, test and demonstrate

7 June 1989]

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appropriate technologies and techniques in the field, leading to the establishment of small rural industries in close association with local partners. In accepting these recommendations, the Working Party's Report¹ recognised that although intermediate technologies could not provide the answer to all the problems faced by development countries, in many cases it satisfies the need both for economic growth and social development. It recognised that the risks involved in trying to establish small productive enterprises often inhibited their development; and the best contribution it could make would be to finance innovative projects leading to their establishment. Its central proposal was that ODA should provide funds to Intermediate Technology, to create an Industrial Service (ITIS) which would develop the technologies and the mechanisms to promote small rural enterprises.

A glance at the Report's "Summary and Recommendations", reproduced in Annex I, summarises the extent of the British Government's contribution to the appropriate technology debate which was being conducted at that time among international and bi-lateral donors, led by Robert McNamara the then president of the World Bank. The adoption of the recommendations placed the Government in the forefront of those donor agencies who recognised that a new emphasis was needed to give reality to poverty-focussed aid programmes.

ODA's recognition of Intermediate Technology's potential to contribute to poverty-focussed programmes has helped us to establish our bona fides with other international and bi-lateral agencies, and to influence them to adopt appropriate policies.

In June 1988, representatives from all the major bilateral and multilateral aid agencies met with colleagues from developing country government and NGO organisations in the first World Conference on Microenterprises. ITDG was invited by ODA to present a paper on "The Role of Technology in Microenterprise Development" at this meeting. This provided a valuable opportunity to emphasise that small producers need scientific and technological assistance in addition to financial support in order to utilise local skills and natural resources more effectively.

As an indication of the confidence expressed by ODA in the strategies adopted, its support to Intermediate Technology increased from 394,000 in 1978, to 1,839,000 in 1988. This support has also helped to generate other funds both from public donations and other international and bi-lateral programmes. During the same period, support from other sources rose from 413,000 to 1,890,000. Sums spent on individual projects has often generated sufficient confidence among other agencies to persuade them also to contribute to the projects, thereby producing a good return on the initial investment of ODA funds.

However, as a proportion of the British Government's overall allocation to Overseas Aid—which has itself decreased in real terms in recent years—the allocation to appropriate technology initiatives is still very small. This is not a plea for a substantive increase in funding for Intermediate Technology; rather, that the ODA, recognising the importance of intermediate technologies to poverty-focussed programmes, should examine ways in which it can stimulate others to adopt them.

For example, the Working Party's recommendations did not deal exclusively with the provision of support to Intermediate Technology, but included recommendations that ODA's own technical assistance programmes, overseas posts, geographical departments and Development Divisions, as well as its special units should be mobilised to encourage and support appropriate technology programmes. We don't believe that this has occurred to the extent necessary or possible; and that the instructions issued to ODA personnel on this subject at the time have been forgotten or ignored.

The ODA has instituted three triennial reviews of its programme support to Intermediate Technology and certain of its special units, and a fourth is planned this year. But these reviews have not extended to a review of the response from its other divisions and units to the directives issued in 1979. Nor has there been any serious examination of the potential for other initiatives designed specifically to further the creation of small enterprises in rural areas of developing countries, such as the provision of credit, and training, and the encouragement of local institutions to undertake their own research and development.

The ODA staff responsible for administering the programme are overworked and frequently changed; and this does not allow them to become acquainted with the issues involved or to develop new strategies for expanding the programme.

The triennial reviews take up considerable time, both of ODA and Intermediate Technology staff and, whereas regular reviews and assessments of programmes are necessary and valuable, bearing in mind the nature of the work, progress is hard to quantify between one review and the next. If they were undertaken at longer intervals the assessments would be more meaningful, and the time saved could be used to plan new initiatives.

Nevertheless, when we compare ODA's contribution to appropriate technology programmes with that of other bi-lateral agencies, we don't think the ODA has taken sufficient credit for its initiatives, both in regard to the support it has provided, and to the unique relationship it has developed with an independent,

¹ "Overseas Development Paper No. 8", published by the Ministry of Overseas Development in May 1977.

7 June 1989]

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non-government executing agency. It is important that it should do so by playing a more active role among other donor agencies when overseas aid policies are under discussion. A brief description of the contributions made by other donors to aid for intermediate technology programmes is included at Annex II.

ANNEX I

REPORT OF THE ODM WORKING PARTY ON APPROPRIATE TECHNOLOGY MAY 1977

Summary and Recommendations

We examined the case for a stronger emphasis in the British aid programme on the promotion of intermediate technologies in the developing countries. We conclude that in view of the importance now attached to intermediate technologies by the developing countries, of the role aid donors can play, of the direct relevance of the subject to our aid policy of doing more to help the poor, particularly in the rural areas, and of the possible advantage to British industry, the current modest level of assistance to intermediate technologies within the aid programme should be increased.

We recommend that one way of achieving this should be by intensifying existing technical co-operation and capital aid activities in intermediate technologies. As far as the former is concerned, **we recommend** that:

- research and in particular development funds should be administered with a clearer recognition that risks will inevitably have to be taken;
- technical assistance should be provided to selected establishments in developing countries specialising in intermediate technologies;
- technical co-operation officers and volunteers should be briefed to look for intermediate technology opportunities;
- overseas posts and Development Divisions should be encouraged to look out for and respond favourably to requests for assistance in intermediate technologies;
- increased emphasis be put on intermediate technology projects within the 50:50 scheme with voluntary agencies.

As far as capital aid is concerned, **we recommend** that ODM geographical departments should give special attention to intermediate technologies. Consideration should also be given to providing lines of credit, perhaps associated with technical expertise, to developing country financial institutions specialising in lending to small scale industries.

We recommend in addition a new initiative to encourage people in Britain and the developing countries to come forward with good ideas; to provide ways of translating them into marketable products; and to put people in Britain and the developing countries interested in intermediate technologies in touch with each other. Activities should as far as possible be in the developing countries, and should concentrate on production and marketing.

To achieve this **we recommend** that ODM should:

- encourage the strengthening of information gathering and dissemination;
- encourage the establishment of links between British producers and overseas markets;
- encourage the testing, monitoring and evaluation of prototypes;
- consider providing development finance to firms in Britain and developing countries for producing intermediate technology products;
- encourage marketing surveys and campaigns as one means of achieving the above;
- should be prepared to provide financial support to new and existing institutions in Britain or the developing countries, include voluntary agencies, other than through the 50:50 scheme, concerned with the effective promotion of intermediate technologies.

We recommend that not less than 500,000 a year for three years beginning 1977/78 be set aside from the aid programme for these purposes, to be increased if demand and results justify it.

We recommend that a clearly defined departmental responsibility should be created in ODM to cover all aspects of intermediate technologies (outside the operation of the bilateral aid programmes) and to manage the new funds, supplemented if necessary by an advisory panel of ODM and outside advisers.

We recommend that a proportion of the funds be allocated direct to the Intermediate Technology Development Group to enable them to carry out certain activities in v. above, and to recruit the staff needed to do so efficiently.

We recommend that the ODM Special Units should have access to the funds to extend existing activities in the areas mentioned in v. above in their respective fields.

7 June 1989]

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We recommend that the activities of the ITDG and the ODM Special Units should be complementary not competitive.

We recommend that the Commonwealth Development Corporation should be asked to consider extending its intermediate technology activities, in particular by:

- offering advice based on its own experience, particularly in handling produce and in organisational systems;
- providing field trial facilities on its projects for prototype intermediate technology products developed by others.

If our report is accepted **we recommend** that Ministers take what opportunities are open to them to make known ODM's interest in and commitment to the concept of intermediate technologies.

ANNEX II

SUPPORT TO APPROPRIATE TECHNOLOGY PROGRAMMES BY OTHER DONOR AGENCIES

Bi-lateral Support

Although a number of donor governments give generous support to individual appropriate technology projects, few have declared policies relating to the subject or specific implementation mechanisms. As far as we know the British and American Governments are the only ones to have declared policies which are implemented, in the main, by appropriate technology agencies set up for the purpose.

The nature of the support provided varies considerably, but in most cases it is by way of grants—mainly for R&D—to their own national institutions, including industry, universities and ngo's; or by contributions to specific multinational agencies or Third World government projects: or, indeed, to other nations' agencies. Intermediate Technology, for example, has received direct support for a number of its projects from American, Dutch, German and Scandinavian government funds; and indirect support through multinational agencies in receipt of grants from bi-lateral sources. Although the ODA has supported specific individual appropriate technology initiatives mounted by multinational agencies—usually for conferences, seminars or publications—it has not, to our knowledge, given support to other bi-laterals except indirectly, through the support it gives to joint projects undertaken by Intermediate Technology.

During the Carter Administration (which coincided with an up-surge of interest in appropriate technology within the World Bank) the US Congress approved the creation of Appropriate Technology International (ATI) to stimulate and provide support and assistance to appropriate technology projects and programmes in developing countries. Congress approves ATI's annual budget, and the US Agency for International Development (USAID) monitors and audits its work. Apart from some differences in programme emphasis and execution, the most significant distinction between British and American government support for appropriate technology is in the nature of the executing agencies and the image they have in the eyes of governments and agencies in the Third World. Whereas, although it now receives a very significant proportion of its funding from ODA, Intermediate Technology has always been—and is seen to be—an independent charity, raising its own funds and carrying out its own programmes with the minimum of interference from ODA or its other funders; ATI is—and is seen to be—a creature of Congress, being subject to the whims of political change and entirely dependent upon American Government funds. As such, its motives are often regarded with suspicion in many Third World countries who, perforce, accept US aid but are suspicious of its intentions.

The Canadian Government's contributions to Science and Technology for the Third World is directed through two quasi-government agencies: the International Development Research Centre (IDRC), which is responsible for research, and the Canadian International Development Association (CIDA), which is responsible for support to programmes in the field. Both organisations have sponsored appropriate technology projects in the course of their general support to overseas development. As far as is known, there is no specific policy in relation to appropriate technologies. IDRC help to Intermediate Technology has included funds to launch "Waterlines", a quarterly journal on appropriate technologies for water development.

In France, the Groupe de Recherche et d'Echanges Technologiques (GRET), an NGO, leads in work on appropriate technologies. GRET used to depend on block grants from the French Government for its core support, but now funds all its work (still mostly from the French Government) on a contract basis. The Group's headquarters is in the ORSTOM (French ODA) building, which adds to the ambiguity in GRET's status. GRET today is primarily an information and consulting agency, much like VITA (Volunteers in Technical Assistance) of the USA. It has few core staff and does no in-house research and development, but maintains strong contacts with other French R&D centres (universities, laboratories, private firms). While GRET staff see no problems with its transition from QANGO (more or less) to

7 June 1989]

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contractor status, ITDG staff are concerned that GRET no longer can dictate its own research agenda, but must respond to existing donor preferences. ODA's ATPF contribution to ITDG provides the Group with essential freedom to manoeuvre in its determination of science and technology work priorities.

The Norwegian Government's aid programme is mainly directed through NORAD, a government agency which provides support and consultants to Third World government programmes. Norwegian agencies and individual consultants have considerable expertise in appropriate technology, especially in certain areas, such as labour-based road construction techniques, but it is difficult to use them to best advantage because not enough has been known by the authorities about the expertise available in its universities, companies and ngo's. More recently, following the 1987 conference mentioned in the main text, the Norwegian Government has provided NK 2 million (approximately 200,000) to the Norwegian Institute of Chartered Engineers to create a "focal point" for appropriate technology initiatives. This should assist NORAD to determine its aid policy in regard to appropriate technology, and to make better use of the human resources which are available in the country.

Other Scandinavian countries don't have any specific appropriate technology policies or executing agencies, although they do provide long term block grants to development agencies for field programmes, including appropriate technology programmes. The Swedish International Development Agency (SIDA)—the country's equivalent of ODA—distributed 150 million in grants to its ngo's last year—between 15 per cent and 20 per cent of its total aid budget—whereas the ODA has recently increased its support to ngo's, to 16 million p.a. SIDA has actively supported appropriate technology initiatives, both in the field and by grants to national institutions, such as the Beijer Institute to undertake R&D into renewable energy technologies. It has also been the major sponsor of the Swedish International Inventors Awards, a prestigious scheme for recognising appropriate technology innovations throughout the World, which Intermediate Technology won in 1986.

The West German Government is aiming to increase its aid programme to 1 per cent of GNP over the next few years from its present 0.7 per cent. It is difficult to estimate, but at least 100 million goes to German NGO's and foundations. A high proportion of their work is aimed at poverty programmes, with a strong appreciation of the role of small enterprise and technology in development. The main Agency for Technical Co-operation (GTZ) has recently absorbed the German Appropriate Technology Exchange, and the ability to consider the institutional and technical implications of intermediate technologies is well integrated into most of its programmes. Intermediate Technology has had strong links over many years with GATE/GTZ, as well as other agencies in Germany.

UN Agencies

Although all the major UN agencies have made declarations and passed resolutions in support of appropriate technology programmes, none of them have special units dedicated to promoting their development and use. Perhaps the most active agency has been the ILO, which has a declared poverty-focussed policy and, through its Technology and Employment Programme, has actively pursued appropriate technology initiatives for the rural poor eg through its Rural Roads Construction Programme. The ILO has supported a number of field initiatives mounted by Intermediate Technology in regard to vehicles and access roads for rural areas, and small contractor training schemes for the construction industries in developing countries.

UNIDO, whilst advocating and sponsoring the application of appropriate technologies in industry, finds difficulty in relating its work to the requirements of village industries and the needs of the rural poor, concentrating instead on technologies which are more appropriate to conventional small-scale industries. The same applies to World Bank and UNDP supported programmes.

The United Nations Development Fund for Women (UNIFEM) is small but potentially significant contributor to the UN's work on appropriate Technology. UNIFEM's priority is to enhance women's productive activities through technological and other assistance. As well as supporting its own projects UNIFEM advises UNDP, FAO, WHO, and other, larger UN agencies on how their projects can be adapted to better address women's needs. Marilyn Carr, ITDG's Chief Economist from 1975–1987, serves as Chief Technical Advisor to UNIFEM, and there are strong ties between the two organisations.

A major criticism of the support given by any of the UN Agencies is their failure to provide risk capital for the development of innovative technologies. Consequently, many worthwhile appropriate technology programmes are starved of funds for research and development, other than those made available from bi-lateral sources.

7 June 1989]

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Examination of witnesses

Mr FRANK ALMOND, Chief Executive, and Mr ADAM PLATT, Director, Policy and Country Representation, Intermediate Technology Development Group Ltd, called in and examined.

Chairman

597. Mr Almond, we are most grateful to you for coming along today and also for your most helpful and informative paper. Would you like to add anything to it by way of introduction before we ask you some questions?

(*Mr Almond*) Thank you, my Lord Chairman. Yes, I will take that opportunity if I may. Perhaps I could make two broad introductory remarks without taking up too much of your time. The first is to describe ITDG's perception of the development process which guides our thinking, its practical philosophy in other words. Secondly I will describe a little how we as a small non-governmental agency put this into practice.

Perhaps it might be useful to start by saying what we are not. We are not a charitable relief and welfare organisation which aims to relieve and mitigate the plight of the poor in the under-developed countries. Against the scale of that sort of problem our resources—indeed, any organisation's resources, whether OXFAM, ODA or the World Bank—are very small. That is not to denigrate the importance of humanitarian aid. There are many situations, natural disasters or regrettably man-made disasters, which cause upheaval and immense suffering to the poor of the Third World. But as a background to our point of view I think it is worth noting four related points. Firstly, disasters can be exacerbated by the conditions of under-development. There is the point of view that the recent floods in Bangladesh were in part caused by deforestation higher up the Himalayas, in turn attributable to populations desperately searching for wood fuels. Secondly, under-development impairs the ability of people to cope with and recover from situations of disaster and the impact is consequently worse. Thirdly, some of the supposed agencies of disaster such as desertification, overpopulation, loss of grazing, are not so much a cause of poverty but the result of it; there is ample evidence that stable communities respect their environments and there is also ample evidence that as economic and social standards improve many of these conditions actually get better. Fourthly, the fact that some contributory factors have to be laid at the feet of the north rather than the feet of the governments and peoples of the south. I can cite the lack of development of suitable institutions, an inappropriate aid history in some cases, prejudicial trading conditions, and penal interest burdens. Most agencies accept these points of view and that sustainable longterm development is underpinned by economic progress. We believe there are two conditions that must be met if aid is to be focused on the poorest sections of the community. The first is that development must relate to the poor and where they are, and in most countries the poor in the main occupy the rural areas. We must therefore look to sustainable rural livelihoods, economic regeneration of rural communities.

Secondly, we believe that for the poor to receive the benefits of economic development they must have a significant degree of control over productive assets. These considerations give rise to ITDG's emphasis on smaller cheaper technologies that can be sustained in the rural setting. So ITDG believes that the role of science and technology is to support the function of the rural poor as producers rather than consumers or recipients of charitable aid. We regard the lack of access to productive assets and the suitable technologies to exploit them as one of the major obstacles to development. If I might just digress very quickly, we adopt a very broad definition of technology in this context. We conceive of the whole process by which people convert their productive assets, whether it be the land, simply their labour or other resources they have access to, into products or services; and that means not only the hardware of technology, which is the tools, equipment and factories, but also, if you like, the software that goes with them, the skills, the knowledge, the technical, managerial, organisational skills which must all be developed in the economic, social and cultural setting in which these people live. For us that is reflected in the number of non-technical professional skills that we deploy—economists, social scientists and anthropologists, for example—and, above all, the degree to which we rely upon local people and the institutions which represent them to guide our policies and our work.

The second broad point I wish to make, my Lord Chairman, is to describe briefly the implications that this philosophy has for the way in which ITDG works, its chosen strategies and its organisation. Again I would start by saying that we are a very small agency and we recognise that our efforts on their own will have a minimal impact and will have a relatively high price attached to them. So what we consciously look for are ways in which we can multiply our effectiveness and broadly we do that in two ways. Firstly, we are always concerned with the replicability of our project work. We do not embark on practical work unless we are convinced that it is representative of a broad need and that the approach can be successfully taken up elsewhere. This involves understanding the process of replication or dissemination—the way in which technology is spread—as well as simply ensuring that the technologies are technically and economically viable. In all cases our projects must embrace a strategy for successfully disseminating their experience. In this sense we see our project or operational work as simply a basis for experience and credibility from which we can undertake our wider mission. Perhaps I might give an example at this stage. We are active in the area of the promotion of alternative building materials to the conventional permanent building materials that most communities might aspire to—concrete and tin roofs—and we have been involved with the development of a simple, low-cost alternative for roofing

7 June 1989]

Mr FRANK ALMOND and Mr ADAM PLATT

[Continued

[Chairman *Contd*]

involving sisal/cement roofing tiles. But the technology itself is very simple, it is capable of being taken up by small rural entrepreneurs very successfully. The relevant point is that the dissemination or the diffusion of that technology is very much dependent on several things. It is dependent on such simple things, for example, as whether the local building codes allow the use of it. So one has to address oneself to the policy environment in that technology sector. It may depend very much upon the behaviour of the development finance institutions as to whether they would lend money to that sort of activity. It may be constrained by the rate at which entrepreneurs can be trained to use that sort of technology. The second way in which we look for the multiplication of our effectiveness is that having reached this sort of understanding of the process by which technologies are taken up and disseminated, we then aim to persuade and influence other agencies or other parties to the development process to adopt it. This ranges from field workers to local agencies, local governments, international agencies, loan agencies, development finance institutions and so on. In this sense we see ourselves primarily as a communicating organisation. In structural terms, that means that we have got a number of units which relate to the communication and dissemination of information as being one of our primary purposes.

598. Thank you very much, that is very helpful. Clearly, there is a great deal of logic in your whole approach, but you do say in your paper that your approach is not a solution to *all* the problems, implying that there is room for other types of technology, perhaps both less sophisticated than yours and more sophisticated. Would you like to say a word about how you see the balance and the amount of effort put into *your* type of technology and others? Is it about right, or do you feel that you could do with a great deal more of the available funds?

(Mr Almond) We certainly think that the balance has got a great deal further to go in terms of the smaller, more appropriate technologies. Clearly we would subscribe to the view that a balance of technologies is appropriate, and clearly there are cases where economies of scale or the dictates of the process require that technology be undertaken at a fairly large scale. I would at this point, though, speaking as a chemical engineer myself, say that some of the supposed economies of scale which we believe rule what we do in things like cement plants, fertiliser factories and so on do not actually hold up in many of the economic circumstances of the developing countries, and one has to look at such factors as the dis-economy of scale of management. Very often you find that large facilities overseas cannot reach their designed production levels because they cannot be managed or resourced at an appropriate level. Having said that, we also believe that one of our key roles is to demonstrate a range of technology choice. It is, at the end of the day, for the users to decide what best suits them. Technologies are always contextual. We would be very afraid to say that there is an appropriate solution to any particular set of needs. There are many ways of doing it, and all we would concern ourselves with at the end of the day is that

the benefits flow in the right way to the right sections of the community.

Lord Perry of Walton] Is not the problem that governments and politicians prefer to go for the big stuff rather than the small stuff?

Baroness White

599. Prestige comes into it.

(Mr Almond) There is clearly economy of scale also in the aid business, in that it is easier to disburse large amounts of money with the same amount of administrative effort, rather than smaller amounts with a disproportionate amount of administrative effort, and there is a desire to seek large impact and very quick results.

Lord Walston

600. Are your overheads larger, as a proportion of the amount of money you disburse, as a result of the economies of scale you have spoken of, than those of other larger organisations which dispense far more money?

(Mr Almond) The honest answer, I think, would broadly be yes, but I would have to debate with you what one called an overhead in that sense. If we were to be simply a route for channelling either financial or technical assistance, then clearly one would seek to do that in the most cost-effective way possible. We are providing a range of skilled advice and services to our partners overseas, and in that sense it is very difficult to disentangle in *our* terms what is an overhead cost and what is a direct input to our field work.

601. You mentioned partners overseas. Does that mean that you have organisations similar to your own overseas, who will ask you to come and will suggest things to you?

(Mr Almond) There are indeed organisations of that nature, but by "partners" I was trying to categorise the broad range of institutions with which we deal. If you hark back to what I was saying about dissemination, it does to us imply that there must be somebody, at the end of the day, who can take the results of the work forward. There is little logic in our entering into a close relationship with individual members of poor communities. Rather, we always seek to work with partner organisations who represent their interests. These are very commonly non-governmental agencies, but can equally well be state or para-statal organisations, or other organisations whose basic concern is to represent the views of the poor communities that we are trying to address and, ultimately, to have somebody to help disseminate the results of our joint investigations into suitable technologies and approaches.

Lord Thurlow

602. Can you give any indication of the range of distribution of your influence? There is a vast number of countries that are involved, and potential beneficiaries. How far do you reach?

(Mr Almond) Having said that we are an organisation that attempts to be influential, one also has to recognise that that is a very difficult thing to measure.

7 June 1989]

Mr FRANK ALMOND and Mr ADAM PLATT

[Continued]

[Lord Thurlow *Contd*]

We adopt some practical constraints upon what we do. We choose to focus our resources on a number of countries, in order to understand those environments better and in order to understand whether indeed we have had any sort of beneficial impact. Might this be an appropriate moment, my Lord Chairman, to ask my colleague Mr Platt to speak on the countries in which we do work?

Chairman

603. Could you tell us how you select the countries?

(*Mr Platt*) We concentrate on five countries. We call them countries of concentration. We selected those countries on the basis of desiring to have a spread of representative locations for our work. We also considered the amount of work that we had developed at that stage because—I must cover this historically for a moment—we have over the years, in fact, been a very responsive organisation and addressed ourselves very widely in the Third World but in the last four or five years we have decided to be more specific and concentrate on fewer areas. Other criteria have been that there should be a sufficient range of partners in those countries that we can collaborate with, and the policy environment in a country is very important to us as well. It is quite impossible for us to work in a country that is not interested in the efforts of a non-government development organisation from the north like ourselves. It is impossible for us to work in a country where the security and political instability make it impossible for the development process to move forward. Overall we have ended up with a selection of countries which provide us as an organisation with a range of opportunity and it also provides us with a range of countries where we have examples of the different socio-political and economic conditions that exist in the Third World today. In purely geographical terms we are also represented in all the continents of the Third World.

604. Which are the five countries?

(*Mr Platt*) Peru, Zimbabwe, Sri Lanka, Bangladesh and Sudan.

605. Do you find ready acceptance in all those countries of the work you try to do?

(*Mr Platt*) We find ready acceptance in those countries so far as the partners to whom we address our efforts are concerned. We find mixed receptions as far as the governments of these countries are concerned, ranging from extreme welcome to an attitude which relates to a concern that the government's incapacity or inadequacy in terms of resources to meet the needs of its poorer communities is an embarrassment, shall we say, and they are not always happy that non-government organisations from the north should be undertaking work which strictly speaking they would wish to undertake themselves. To overcome that sort of difficulty we are extremely careful to ensure that our presence is as acceptable as possible to the governments of the countries in which we work and to that extent we have recruited representatives who are nationals,

and acceptable nationals, of the countries concerned.

606. Are those five countries where you concentrate or are they the only countries you work in?

(*Mr Platt*) They are not the only countries in which we work. We do work in other countries. We try to concentrate the majority of our resources on those countries. We work in other countries in the sense that we wish to disseminate, to replicate, to spread our influence more widely.¹

Baroness White

607. Am I right in supposing you are not as active in Ghana as you were at one time because you feel they have made sufficient progress?

I ask this partly because I was first convinced about the importance of what you now call intermediate technology when I visited Ghana in 1953 with the late James Griffiths, former Secretary of State for the Colonies, and saw a perfect example of how three or four physical and social village problems were solved concurrently by the use of the simplest possible techniques by an American missionary. I have been one of your followers ever since.

(*Mr Almond*) We very much wish we could work in West Africa. We did at one stage and would love to return there. I believe that some of your Lordships are visiting West Africa shortly. There is a very interesting example of a local appropriate technology institution in Ghana which was established back in the early 1970s at the University of Kumasi, the Technology Consultancy Centre. This was an institution which was to a large degree aided in its conception and design by ITDG. That has subsequently grown into a nationwide network of appropriate technology support institutions. They are very well served in that sense. I think it is one of the apparent paradoxes of our work that one can look at a country like Ghana which has gone through the trough of economic gloom, and within that there has been the motive power to develop self-sufficiency from within the country, using their own resources. It can be a very powerful spur to indigenous development.

Lord Adrian

608. You say you would like to work in Ghana. What is the reason why you are not working there?

(*Mr Almond*) Resources. That is all that prevents us from extending our work into other regions.

609. The resources you would like to come from Ghana, I take it. I am not quite sure where the lack of resources arises.

(*Mr Almond*) By that I mean the financial and personnel resources, skilled resources to undertake

¹*Note by the witness:* As well as the 5 countries named, ITDG currently has quite extensive programmes in Nepal, India, Malawi and Kenya. Steadily ITDG is working towards limiting its activity outside countries with representatives to wider dissemination of successfully developed techniques and methods. Several units of ITDG—IT Consultants, IT Publications, the Technical Enquiry Unit, Press, Media, Development Education departments are principally concerned with wider dissemination.

7 June 1989]

Mr FRANK ALMOND and Mr ADAM PLATT

[Continued

[Lord Adrian Contd]

our work, which we would not normally seek from the local countries.

Chairman

610. Of your total expenditure how much comes from the places you help, government or other organisations locally, and how much comes from your charitable income from people and organisations in this country?

(*Mr Almond*) We certainly do not seek contributions from our partners in the developing countries. I think the sort of contribution that our partners will often make is in kind. But in strict financial terms, no, we do not seek any financing from them.

611. So the whole of your expenditure comes from charitable donations to your organisation?

(*Mr Almond*) We receive our funding from a number of sources. We have a generous grant from the Overseas Development Administration. We raise money ourselves, charitably from the British public and elsewhere. We solicit grants and income from trusts and foundations and donor institutions, the professional project-financing partners.

Lord Perry of Walton

612. Within the five countries you have selected how much more could you spend? In other words, how far are you restricted in meeting what demand there is on financial grounds within those five countries?

(*Mr Almond*) There is no doubt that in time we could deploy considerably more resources. I hesitate to put a figure on it for you, but the constraint upon our doing that is the rate at which we can develop project work overseas with those partners. As I was saying, we take great pains to ensure that our work is properly formulated and directed, and one cannot turn that sort of tap on overnight. It depends also on the degree to which we as an organisation can grow and develop. So the longterm answer is that any amount of resources could be deployed in this cause but one could only gear up to that fairly slowly.

Lord Walston

613. You are restricted, then mainly by lack of money rather than lack of personnel?

(*Mr Almond*) In the long term, yes.

614. How do you recruit your people, and on what terms? Is it an annual contract, or do you have a permanent expert staff, or what?

(*Mr Almond*) We have a considerable core of permanent professional and support staff. We also have a large number of people on a contract basis, very often attached to particular projects. I would say that increasingly these people are being drawn from the countries concerned. Mr Platt mentioned our office in Peru. The 22 staff there are Peruvian professional staff working on our projects.

Lord Thurlow

615. I take it that quite a lot of your resources are channelled into the production of your publications.

Do these have a considerable circulation in countries that you are not represented in, such as India?

(*Mr Almond*) As a charity, we try to run our publications house on a cost-covering basis. This is not always possible, as it would restrict the availability of publications overseas, particularly to people who do not have access to foreign exchange. Therefore, there are a number of schemes that we enter into for co-operative publishing within overseas countries, and there are a number of schemes run by the other voluntary agencies such as VSO, OXFAM, Christian Aid, which provide funds for the acquisition of books by field workers and other people overseas.

Lord Shackleton

616. Is there a feeling of excitement among your staff, whether expatriate or Peruvian or whoever they may be, that they are working on something important? Does the Schumacher concept influence their attitudes?

(*Mr Almond*) We are all people who come with a sense of mission and purpose. We are all disciples of Schumacher, if you like. Yes, I think we are all fired with an enthusiasm for the purpose.

617. In your staff, when you are selecting people, do you see whether there is a degree of enthusiasm?

(*Mr Almond*) Indeed.

Baroness White

618. I was wondering if we could ask something more specific about your relationship with ODA, because you are fairly critical of them. For example, in your memorandum you said: "However, as a proportion of the British Government's overall allocation to Overseas Aid—which has itself decreased in real terms in recent years—the allocation to appropriate technology initiatives is still very small." It is clear that you feel that ODA could be somewhat more active in this particular realm. Further on you refer to the triennial reviews and suggest as a practical matter that every three years is really too frequent. It takes up too much time on both sides, and five years would make more sense. You add "The ODA staff responsible for administering the programme are overworked and frequently changed; and this does not allow them to become acquainted with the issues involved" and so on. So plainly, while you are assisted by ODA, you feel that the relationship could be considerably improved by a fuller appreciation on their side of what it is you are trying to do.

(*Mr Almond*) There are a number of questions, I think, embodied in those comments. Firstly, our criticism as such of ODA is not that we feel that they are misconceiving some of their aid, but perhaps they are not doing enough of what they do already. If you take the issue of support to non-governmental organisations, the ODA has made very significant increases in recent years in the amount that it is passing through the non-governmental organisations. On the one hand we applaud that, but on the other hand there is still a long way that they could go. I think that the figures are very crudely that

7 June 1989]

Mr FRANK ALMOND and Mr ADAM PLATT

[Continued]

[Baroness White *Contd*]

something like 1.5 per cent of Britain's bilateral aid is routed to the non-governmental organisations. In Canada I believe it is something like 8 per cent. In the United States it is over 12 per cent. So we feel there is scope for more of the same. In terms of our relationship with ODA, not sufficient attention has been given to what we feel was a very important initiative that was undertaken by the ODA back in 1977, which was essentially to support the introduction of appropriate and intermediate technologies. A large element of that support was directed towards strengthening ITDG. There were in addition a number of exhortations to the development divisions and the posts of ODA that they should be more keenly aware of the possibilities of implementing this sort of project. It is certainly our perception that that has fallen by the wayside, to a degree.

619. Could you say something about replicability? Whatever one might think of the Scouts and the Guides, it was replicability which really made them worldwide institutions. How far, in your selected five countries, for example, is replicability real, or how far do the physical conditions or social customs make it difficult to replicate certain types of technology more or less universally in any tropical country?

(*Mr Almond*) I think the answer is that one always has to make concessions to local conditions. There are very few technologies which can be spread virtually unchanged anywhere like a Singer sewing machine, for example, which will do the same job wherever you deploy it. More importantly than that, we feel, is our understanding of how technologies are actually taken up and disseminated within a country. The lessons you learn there, in terms of the methods that are deployed, are equally valid when you approach a similar problem in another area. We then feel we are in a position to give good advice to people who wish to embark on the same route. By that I mean the relative importance of having to influence the policy environment, the relative importance of training in the uptake of technology, the development of management skills or whatever else—indeed, the understanding of the route by which the technology is taken up and disseminated. If one looks at the very simplest levels of technology which might be, for example, an improved cookstove for domestic use, this will spread in a very informal manner, very often aided by community development organisations. The support that can be given to that sort of process is to provide information and assistance to the producers of these stoves. At the other end of the scale, if you are talking about rather more complex pieces of plant and equipment, the more formal commercial sector becomes important, and very often we disseminate technologies through the private commercial sector because that is a very good way of ensuring that the technology is secured and maintained and does not degrade, there is an element of control of this transfer.

620. Do you consciously try to employ womanpower in more intelligent ways than it is employed in some less developed societies? As you know, in certain societies women are—in addition to being

cooks and looking after the children—simply expected to carry wood and draw water. I wondered, as you have quite a reserve of potential intermediate technology recruits, if you can get through the social barrier.

(*Mr Almond*) This resource of womanpower, as you called it, is largely tied up in and committed to a never-ending round of drudgery and labour in childbearing, fetching and carrying water and fuel, and agricultural work, and very often we find that some of the simpler technologies we deal with have the greatest impact upon the women simply because they release them from this everyday round of drudgery. May I quote an example to give some substance to that? An associate group of ours, Intermediate Technology Transport, was engaged to do a survey on transport requirements in rural Tanzania and did something which had not been done before. They looked at it from the user's point of view to define exactly what was being carried, how far, by whom, and where—not on the scale of inter-city transport such as might be needed to define the need for a major feeder road, but at village and community level. The results were staggering. I think in general terms something over 75 per cent of the transport was internal transport within and around the village; the majority of it was physically carried rather than being transported in any sort of vehicle at all; and well over 90 per cent of it was carried by women. There I think you have the point.

621. Need I say more?

(*Mr Almond*) You need not.

Lord Walston

622. On the question of replicability and dissemination, are you influenced in your choice of where to concentrate in any area you are going into by the fact that you would like to have a community which has some possibility of leadership among its neighbouring communities and, therefore, if it succeeds, the others will follow it, or is that something you do not think about?

(*Mr Platt*) Yes, I think that is a very important consideration in selecting programme work and project demonstration work. It would be very unlikely that ITDG would consider a project likely to be capable of replication on a wide scale if it could not be replicated on a small scale, on a local scale, shall we say. So certainly a lot of our resources are nowadays not just technological resources or technical resources, engineering resources, but also the resources of social science—and indeed our capacity includes social anthropologists, economists and the like, and these people are very much involved at the earliest stages of project and programme identification in assessing whether replication is a possibility in becoming involved in that technical activity.

623. Reverting to Lady White's question about women, you said that the activities of women are largely drawing and carrying water and in agriculture. Would you not agree that, certainly as far as agriculture is concerned and to a certain extent the methods of drawing and carrying water, women do a lot of the work that one could say is capable—if

7 June 1989]

Mr FRANK ALMOND and Mr ADAM PLATT

[Continued

[Lord Walston *Contd*]

not at the time when you come in—of profiting from intelligence and new methods rather more than that of the men who in certain societies spend quite a lot of their time sitting in the shade drinking beer?

(Mr Platt) Certainly.

Baroness White] You notice I said nothing about that!

Lord Shackleton

624. How far do you find opportunities to build on work that people have already done in the field somewhere, and how far does this influence the countries you go to? I was thinking particularly of the work done by Clutton Brock where there was a strong anthropological and social understanding and indeed where people probably sought to practise intermediate technology which, after all, has been known about for quite a long while. Do you find such potential growth points in some countries and are you attracted to them?

(Mr Platt) Most certainly. The starting point for a large proportion of our work is in fact what you might call existing traditional technology and activity. The very word "intermediate" in our title is that which is between the existing traditional activity and something more advanced. In fact, just next week we are gathering together a fair number of research workers from three different continents to participate in a seminar, which will end up as a publication called "Tinker, tiller, technical change", and the basis of this seminar is to bring together the researches into indigenous technological development, technologies which have been developed by people themselves. There are a number of extremely interesting case studies which we believe are going to come out of this activity. It is part of our policy and impact work to try to show to other institutions considering the development process that indeed it is indigenous technology that can be developed and is likely to be the successful intermediate technology.

625. How far, for instance, does the Overseas Development Institute come into your life? They used to send young men out to different parts of the world on developments, sometimes involving simple technologies.

(Mr Platt) We participate in seminars, workshops, etc., that are organised by ODI and likewise I would be surprised if they are not participating in the Tinker, Tiller Seminar.

Chairman

626. You mentioned on a number of occasions the importance of being sensitive to local needs and opinions. Does that mean the initiative normally comes from the local people who ask you to do something using your skills, or do you go to them and say "We believe our skills could help you on this particular problem"?

(Mr Platt) We believe the ideal process is the former, to start from the needs of the people.

627. Does the initiative come from them?

(Mr Platt) The initiative very often comes from the people, but to be sufficiently close to the situation

on the ground requires a considerable amount of planning and effort on our part.

(Mr Almond) I think another answer to that question is that the diagnosis of what sort of technology is required to meet a certain set of needs sometimes requires a certain degree of skill and experience which may not be present within a limited community. If we can bring that knowledge and experience in, then so much the better. The choice at the end of the day as to the direction they go must be the local community's, as must be the expression of needs. Again I would emphasise that we see our role as being to show the possibilities and the range of technology choice available and to be able to guide people in terms of the different sorts of benefit and impact that that will have. It is also, I think, worth recalling that the ODA initiative, by which we started to receive grant finance from ODA about ten years ago, was specifically to give us the ability to explore new and unfamiliar technologies, acknowledging that these have to be deployed in a risky environment. You are talking about new technologies, which are risky in themselves; you are talking about developing countries, which are risky environments; and often about very small enterprises which are also a risky environment. It is this ability to pilot approaches and take risks which we believe is very valuable and which, of course, poor local communities are singularly badly placed to do. They have to be conservative.

628. On your replication, presumably if you develop a skill or technology in one country, you could say, "Look, we've developed this here, now develop this there. Couldn't we use it *here*, to your benefit?" You might take the initiative in that way, presumably?

(Mr Almond) That is true, yes.

Lord Perry of Walton

629. I know that similar attempts to do intermediate technology were made by the United Nations University in certain places. Can you give us any indication of the total effort being done across the board?

(Mr Platt) I think you are talking about scale. There are many institutions and organisations worldwide, some from the north, some within the south, that concern themselves with appropriate and intermediate technologies in the development process. Some are concerned with what I would call one extreme, which is the development of products and hardware. At another extreme there is the process of describing what exists and what is available. They all have their role. ITDG has concentrated somewhere in the middle, and over the years obviously one changes, as one sees the benefits that result from one approach or another. ITDG has both concerned itself with the identification of needs and the meeting of those needs and with the wider dissemination of the results of meeting those needs. The sum total of this effort, I think, has to be considered as really still quite small. In terms of the interest of Third World governments in technologies that can help in the productive processes of the rural poor,

7 June 1989]

Mr FRANK ALMOND and Mr ADAM PLATT

[Continued]

[Lord Perry of Walton *Contd*]

the level of interest is still quite small. We have a long way to go.

Baroness White

630. Do you get any feedback from the 200 VSO volunteers which you say you train every year at Stoneleigh?

(*Mr Platt*) We get indirect feedback through the contact that we have with quite a number of these volunteers, as we meet them in the field. We do in fact maintain quite a close relationship with VSO in the countries in which we are working. That obviously means that we do not cover all of the 200, but it does mean that we are very often asked by VSO's offices in the field to give some advice to a volunteer working on a particular project, where they feel that that advice can be of use.

631. Yes, but do you then ask the volunteer, "What did you think of it?" VSO volunteers on the whole are fairly sensible people or they would not be selected. They can sometimes give you a very interesting account, literally very close to the ground, of how things work or do not work, much more easily sometimes than through official channels.

(*Mr Platt*) That is true.

(*Mr Almond*) ITDG has always been very close to field workers. A lot of our publications are set up as a service to field workers. The *Appropriate Technology Journal*, as an example, is required reading for the field worker. A lot of feedback comes through those sorts of routes, apart from our contact in the field.

632. Yes, I just wondered whether you realised that you had an intermediate technology of your own, so to speak, which you might tap?

(*Mr Platt*) We do indeed. I am personally an ex-volunteer. If we analysed our staff profile, probably 15 to 20 per cent of our professional staff have served as volunteers.

633. But you do not try to get them to write in to you at the end of their stint, as to how they have been getting on, if they were among those for whose training you had been partly responsible?

(*Mr Platt*) We tap into the VSO post-service evaluation. From that we learn, in undertaking our next courses for VSO, whether indeed the previous courses were found to be of value.

Earl of Ilchester

634. You have mentioned in your paper an example of the commercial uptake of your designs in your projects. This was the egg packing scheme in Zambia. I would be interested to know if you have got any other examples, and whether you approach your project work subconsciously or consciously looking for opportunities to exploit these designs?

(*Mr Almond*) There are indeed a number of further examples I can give you. When you are looking at larger technologies which have to be manufactured on an organised scale, you are normally talking about producer equipment. If I could pursue the example of the roofing tiles that I gave you

earlier, these tiles can be produced using simple equipment which in itself can be manufactured within the countries concerned. It is available in a number of ways, but it is available on licence through a company in this country which has done a lot of work in developing and promoting it. The benefits of that sort of approach are that a lot of additional services come with a transfer of the technology—you get permanent access to improvements and developments in the design, you get some reassurance in the terms that the quality of the design is not being degraded by spurious manufacture, you get after-sales service to an extent. There are also a number of products where the level of manufacture is not going to make sense within a particular country, there may only be scope for a small number of units to be made. In that case it is entirely appropriate for it to be offered from a manufacturing base in the UK. An example of that arose from our work in assisting woodworkers in many countries. One of their problems was the availability of well-seasoned timber in the moist Tropics. Timber-seasoning machinery is clearly very expensive and difficult to acquire. Through collaboration with the Oxford Forestry Institute, we developed a very simple solar timber-seasoning kiln which essentially looks like a greenhouse. This subsequently was developed commercially by a British horticultural glasshouse company, is now available for sale and is selling in some numbers overseas. I can quote many more examples in a similar vein. I would say, though, that our greatest interest is in encouraging local manufacture of equipment.

635. Yes, I noticed that the egg-packing business was taken up by 40 other countries, some of whom may have been developed countries rather than undeveloped countries.

(*Mr Almond*) Indeed they were.

636. This is an environmentally friendly device anyway, making use of waste paper?

(*Mr Almond*) Yes, that is right.

Chairman

637. Do you get some financial advantage from that?

(*Mr Almond*) In some cases we feel it appropriate to claw back some of our costs. We do not set out to make a profit from these exercises, but clearly where there is a commercial entity making money out of these deals, we feel it entirely appropriate to charge a royalty or a licence fee.

Lord Walston

638. Pursuing this, there are three aspects of the problem. One is the actual introduction, as it were, of the sewing machine to people who have never seen it before. The second is the modification of the sewing machine so that it is suitable for the new place where it is going to work. The third is actually designing a sewing machine which has never existed before. Are you involved in all three of those? Do you yourselves actually have any capability of designing the sewing machine *de novo*?

(*Mr Almond*) Yes, we do. I would say though that

7 June 1989]

Mr FRANK ALMOND and Mr ADAM PLATT

[Continued

[Lord Walston *Contd*]

in general we do not aim to indulge in speculative research and development. It very often tends to be both longterm and expensive. We are much more concerned with adapting and modifying ideas to local circumstances. Perhaps it might be useful to take another example at this stage. We were trying to assist the farmers in Bangladesh, and very often landless groups of people in Bangladesh, to process sugarcane in the field, and we were looking for a need-defined technology which was capable of operating without external power and which would crush the cane and which would boil the sugar juice. We came to the conclusion that a small steam-powered system was what was required. What we did not do at that stage was to set ourselves the task of re-inventing the steam engine, but we looked at current examples that might be adaptable for use overseas and, indeed, we found such an example being manufactured in the United Kingdom for propelling steam launches. With the involvement of that small British company, we then re-engineered the basic design of a low-cost simple slow-running steam engine for local manufacture.

639. When you say "we", do you mean you or the small firm making the engines did it?

(*Mr Almond*) We did it together, using our own engineering skills and their skills. The result was a machine which was adapted to Bangladeshi conditions. I must add to that that it then received further adaptation in Bangladesh with a local engineering institution there. So there were three partners to that exercise.

Chairman

640. Are there any ways in which you would like to suggest, beyond what you have already said in your memorandum, how ODA could help you further, other than obviously by more funds? Are co-operation and communication as good as you would like to see them?

(*Mr Almond*) The co-operation and communication are very good. I have to be fair and say that the rapid circulation of staff within the ODA does not allow them to develop a longterm history and view of some aspects of the development work and I get the feeling that at times they are as frustrated with that sort of situation as we might be. We have made several points which refer to our relationship with ODA. I think we see a great deal of encouragement in the way in which ODA is moving—the adoption of a more clearly poverty-focused approach; the recognition of the role and importance of the non-governmental organisations as bodies which can relate to the problems of the poorest communities; and the growing recognition of the importance of the very small-scale enterprise sector, the small-scale manufacturing sector. These are all things which are clearly in ODA's thinking at the moment. We certainly would wish to see a rapid development of support in all of those areas because we are convinced they are very important.

641. You attached to your paper an appendix, the report of 1977. You implied, I thought, in your note that all those recommendations—or most of them—

had been accepted, is that right? They were pretty far-reaching and seemed to me to be constructive and very much in your favour. I do not know whether they really were.

(*Mr Almond*) I think the point we were trying to make was that we felt that this working party was, indeed, a very far-sighted view of the needs of developing countries for simple technologies, and we feel that it is as valid today as it was then. It was as a result of this, of course, that ITDG received its line of funding from the ODA. I was also making the point that there were a lot of other encouragements to other institutions—both ODA itself and other related institutions—that they should take a more open and enlightened attitude towards the adoption of these technologies. We made the very broad comment that we felt that this uptake had not taken place to the extent we felt it could.

642. By and large those recommendations were followed?

(*Mr Almond*) The recommendations have indeed been followed in the sense that the responsibility passed over to ITDG.

Lord Thurlow

643. Apart from the dissemination of inventions of the past, would you say that the fountain of innovative creativity is as productive now as it ever was? Is there a continuous stream of new ideas still coming? You have been in this business for a long time now.

(*Mr Almond*) Yes. It often seems that the sorts of technical solution we arrive at involve retracing our own steps into our technical past. That is to some extent to be expected and inevitable. I would say there are a number of approaches made possible nowadays which were impossible or inconceivable in the past. I would quote one example, that is the advent of cheap and reliable micro-electronics which has enabled us to solve problems in the provision of rural power generation through micro-hydro in a way which was certainly not possible before. It has enabled that equipment to be scaled down and made cheaper and to be constructed locally, which certainly was impossible before.

Lord Walston

644. On that particular thing, am I right in thinking BP is working on something of that sort, a project in Zimbabwe in which you operate? Are you in contact with them?

(*Mr Almond*) The only work of BP's to my knowledge is on solar power for electrical generation.

Baroness White

645. Have you taken it up yourselves, because it has attractions in certain parts of the world?

(*Mr Almond*) To a very limited extent. The problem with solar production of electricity is that it is still a relatively expensive method of production of power, certainly for quantities of power that are of use to people for domestic requirements such as cooking, heating, lighting, and its use is very often justified as an emergency standby facility for some means or another. Our work in power generation

7 June 1989]

Mr FRANK ALMOND and Mr ADAM PLATT

[Continued

[Baroness White *Contd*]

has been more in terms of providing mechanical power or undertaking processing functions, the provision of heat for a lot of industries that depend upon heat, such as the burning of bricks, the production of lime, potteries and ceramics, and the production of electricity through the use of streams—micro-hydro power.

646. On micro-hydro, you mentioned Sri Lanka and Nepal—that seems rather a limited parish.

(*Mr Almond*) There are quite a lot of tropical countries with hilly terrain with permanent streams and we feel that the advance we have made is to make it possible to tap much smaller streams than would ever have conventionally been considered useful as a source of power. Many countries irrigate their crops. Indonesia, a lot of the Indian Subcontinent and indeed Latin America use water for irrigation purposes and when there is water flowing for irrigation purposes it can also be tapped for power production as well.

647. Do you do anything in conjunction with Water Aid?

(*Mr Almond*) I believe not at the moment.

648. Or do they think up their own intermediate technology?

(*Mr Almond*) We know them well and exchange a lot of ideas and information with them, but I do not believe we have any practical collaboration at the moment.

Lord Perry of Walton

649. Would it be just a pipe-dream to think of one of the countries in which you were working getting a large economy-of-scale grant from UNDP and then using it with an organisation like you to do a lot of small projects with a total sum, as a way of expanding this which is obviously a very necessary part of development in the Third World?

(*Mr Almond*) It would be a very welcome prospect. I think there is evidence that this is starting to happen. We have recently received very significant funding from the United Nations Fund for Women—UNIFEM—to extend the work that we had been demonstrating in Peru on a small-scale village food processing, again on mainly women's production. This is receiving very large backing, it is a very welcome prospect, but it is a terrifying one at the same time, because you have to consider how you are suddenly going to deploy these large amounts of money, knowing the care that you need to take to design and develop the project work sufficiently.

650. I wholly appreciate that you cannot do it quickly, but as to the women's one, it is possible for that agency of the United Nations to give money to an organisation like yourself, not just to a Member State, whereas UNDP cannot, they have to give to a Member State. That is so, is it not?

(*Mr Almond*) Yes, it is routed through the country concerned, but in this case it runs through our local office and we are the executing agency in the country, we have full status and recognition in Peru in that instance.

Chairman

651. Going back to electrical power which you mentioned just now, I think you have got an associated power branch—IT Power—have you not?

(*Mr Almond*) Indeed.

652. Do you really leave that part of your work to them?

(*Mr Almond*) Not entirely, no. Over its existence ITDG has spun off a number of small subsidiary companies, believing in its own philosophy of "small is beautiful". It has created a number of children who have gone their own way. These units, like IT Power and IT Transport, find their way mainly through the acquisition of consultancy work. We see that as a very valuable means of exerting influence in the world of the large development agencies.

653. But they raise their own funds, do they?

(*Mr Almond*) That is correct, they are consultancy organisations primarily.

654. Are they charities?

(*Mr Almond*) No.

655. They are commercial organisations?

(*Mr Almond*) They are commercial consultancy organisations.

656. If they make a profit, do they contribute their funds to you?

(*Mr Almond*) Yes, they do, is the simple answer to that. We retain only a very small stake in that particular instance.

Earl of Ilchester

657. You are a charitable organisation, and you do depend in part on funds from the general public, I think you said. The charitable world is a very competitive one and getting even more so, whether it is an international organisation or a domestic one. Presumably you have not got your exact counterpart in other donor countries, have you?

(*Mr Almond*) Probably not.

658. How effective do you find this source of funding?

(*Mr Almond*) The raising of public moneys?

659. Yes.

(*Mr Almond*) As you say, it occupies an increasing amount of our time and attention in terms of raising the money in an increasingly competitive environment, that is true. I would also say that we feel there is a growing element of public awareness and sympathy for the concepts of what one might call long-term sustainable aid, and there is a great deal of public support for what we are doing, which can be expressed in financial terms.

Chairman

660. Supposing you had a substantial increase in funds available to you either from benefactors or from the ODA—for the sake of argument, let us say a third more. Could you use that fairly quickly? I think you explained earlier that you could not immediately develop your resources to take advantage of

7 June 1989]

Mr FRANK ALMOND and Mr ADAM PLATT

[Continued]

[Chairman Contd]

such a windfall, but how long would it take you to expand and make use of that sort of increase in funds?

(Mr Almond) That sort of increase we could absorb very readily, without a doubt.

661. So you would be more optimistic?

(Mr Almond) Indeed. I was talking about orders of magnitude.

Chairman

662. So you could do double the amount of work you do now, quite quickly?

(Mr Almond) I think the first recourse we would have would be to look at expanding our work geographically.

663. In other countries?

(Mr Almond) Yes, in other countries, to extend our effort.

664. So you would be very pleased if ODA could make available some more funds to you?

(Mr Almond) Indeed we would.

Lord Walston

665. If that *were* to happen, how would you go about finding your new countries? Would you put out feelers through friends, through other organisations, through the governments of the countries? Do you need to start at the top level, or would you go lower down and then ask the government to come in?

(Mr Platt) We start lower down. In fact we have other countries in which we are reasonably active already. If we decided that we wished to formalise our activities in those countries to the extent of opening an office, recruiting a representative and so forth, then we would have to negotiate with the relevant authorities and the government for accreditation and so forth, as we have done in assisted countries. This is more or less time-consuming and difficult, varying from country to country.

666. Do you have any privileges in the countries in which you work, as far as tax is concerned or importation of goods duty free?

(Mr Platt) In some, yes; in some, no. We are normally accorded the same privileges as other foreign non-governmental organisations.

Lord Perry of Walton

667. How closely do you work with the British Council?

(Mr Almond) Intermittently. We know them well, as colleagues and friends. There are occasional opportunities for practical involvement where they can assist with aspects of training and the provision of books and information.

668. But as to identifying projects, identifying places to start, they would not be useful?

(Mr Almond) That has happened, indeed. We find them useful.

Lord Thurlow

669. Can you give examples of the other countries that you could fairly easily consider starting up in?

(Mr Platt) Nepal. Kenya we are already quite active in, but there are problems for foreign non-governmental organisations in that country at the moment. West Africa—Ghana, Nigeria—would be quite straightforward.

Chairman

670. Have you tried any countries and been positively repulsed and told by the government that you really were not wanted?

(Mr Platt) No.

Baroness White

671. You have just been squeezed out?

(Mr Platt) No, we have never been squeezed out of any country.

(Mr Almond) In some countries we have found the environment difficult to work in, for a variety of reasons. We used to work, for example, in Botswana, but one finds that the preponderance of influence of the Republic of South Africa there makes the possibility of developing genuine markets for local producers very difficult, so in economic terms it is a difficult environment to work in. In other countries, for one reason or another, there may not be the richness of partner organisations, non-governmental organisations or others through whom we can work, and that makes a difficult area to work in. My Lord Chairman, may I just return to one question, in terms of the money, that you were raising. I would not like it to be recorded for one moment that we were averse to receiving a lot more money from ODA, but I think it is important to record the understanding we have with ODA, which is that a large part of the money we receive from ODA is such that it enables us to do things that other types of funding cannot. We deploy it with a considerable degree of freedom and can use it for investigative work, for pilot demonstration work, where a lot of the risks and uncertainties are still unquantified, project work for which one could not in effect write a sensible fundable project proposal. Having undertaken that work, we can then with much more confidence address the conventional funding institutions and we—and indeed ODA I think—are keen to see this leverage effect of the money they route through us.

Chairman

672. What do you refer to as "other funding institutions"?

(Mr Almond) Other donor institutions, such as the EEC.

673. The international ones?

(Mr Almond) The international ones, yes, trusts and companies and foundations.

674. Roughly how much do you get? What proportion of your income comes from those other funding institutions?

(Mr Almond) At the moment we are getting under half of our total funding from the ODA, like a third of our total funding from other donors, and

7 June 1989]

Mr FRANK ALMOND and Mr ADAM PLATT

[Continued

[Chairman *Contd*]

the remainder is coming from our own earnings and income.¹

675. Other donors include your charitable donors as well as the international organisations? A. Yes.

¹*Note by the witness:* For the financial year 1987/88 ITDG's total income was £3.6 million, of which 45% was provided by the ODA, 34% from other donors, and 21% from earnings

676. Would it be possible to let us have a copy of your latest annual report or some similar document?

(*Mr Almond*) Indeed, I can do that.

677. Are there any more questions? We are very grateful to you for coming along and answering our questions very well. It has been a rather gruelling session for you.

(*Mr Almond*) Thank you very much for the opportunity, my Lord.

MINUTES OF EVIDENCE
TAKEN BEFORE THE
**SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY**
(SUB-COMMITTEE I)

Wednesday 28 June 1989

**MR PAUL SPRAY, MR HUGH GOYDER,
SISTER MAURA O'DONOHUE and MR ROBERT REES**

*Ordered to be printed pursuant to the Order of The House of Lords of
29 November 1988*

LONDON
HER MAJESTY'S STATIONERY OFFICE
£3.30 net

WEDNESDAY 28 JUNE 1989

Present:

Butterworth, L.	Thurlow, L.
Caldcote, V. (Chairman)	Walston, L.
Taylor of Blackburn, L.	White, B.

Examination of witnesses

Mr PAUL SPRAY, Christian Aid, Mr HUGH GOYDER, OXFAM, Sister MAURA O'DONOHUE and Mr ROBERT REES, CAFOD, called in and examined.

Chairman

678. It is good of you all to come. I expect you would probably wish to make a short opening statement as we have had no written evidence?

(*Mr Spray*) My Lord Chairman, thank you for asking us to come and give evidence. I work for Christian Aid. We work in about 70 countries round the world with a budget last year of some £20 million overseas spending. We work not by having our own projects overseas but through funding local non-governmental organisations, of whom about one third may be church, one third would be Christian in some form and one third would be secular. There were three specific points that we felt it may be worth bringing to your Lordships' attention looking at the future needs of developing countries. One is the problem of resource-poor farmers, smallholders, where we feel more research would be helpful, the second is the issue of biotechnology, and the third is the more general problem of the lack of resources available to third world governments at present and the implications that that has for scientific establishments.

(*Mr Goyder*) My Lord Chairman, I represent OXFAM, which spends overseas about £37 million, and we work in a rather different way from Christian Aid in the sense that we have a network of 35 field offices in all the countries where we work. We work through those offices so that we have quite a close relationship with the projects we support in these countries. We have a very diverse programme of overseas aid concentrating on small projects but covering a very wide range of activities. In addition to the comments of Paul Spray on agricultural research, to which I hope we can come back in answering questions, we would like to share with you some thoughts in particular on the issue of transport. This is because OXFAM, in common with other major British agencies and ODA, have spent millions of pounds in the last five years on both large and small vehicles particularly for the famine-affected regions of Africa. In the evaluation work that we have done on these emergency projects we have found that the trucks we have sent a very short life-span indeed. We believe that ODA could take a much more dynamic role in working on the design of these vehicles. They could start some joint collaborative project with

firms like Land Rover, Leyland Trucks in Britain, and perhaps moving on after 1992 to European manufacturers so that instead of just sending to poor countries vehicles that happen to suit our needs in Europe, we could start working with poor countries on designing vehicles more appropriate to the special and tough conditions, especially in Africa. As this is a slightly technical subject I have prepared a note, which I will be happy to submit after the meeting.

679. Thank you, that would be helpful.

(*Mr Rees*) Both Sister O'Donohue and I work for and represent CAFOD, which is the Catholic Fund for Overseas Development, and the official overseas aid organisation of the Catholic Church of England and Wales. We have been supporting both relief and development programmes in Africa, Asia and Latin America since the organisation was founded 27 years ago. Like Christian Aid we have no overseas representation of our own. We work through partner organisations the majority of which have links with the Catholic Church in the countries to which we are giving assistance. We put a great deal of emphasis on structural support for local organisations because we appreciate that in the long term it is local indigenous organisations that will be responsible for their own countries' development. We would like to discuss with you today, if we may, a problem that is giving us increasing concern and occupying an increasing amount of our time and our financial resources: that is the problem of AIDS in the Third World. We see it as an unprecedented problem for which there is no ready-made solution and there is no obvious strategy to adopt to combat it. It is affecting increasing numbers of people. Organisations that are working with the problem can only guess at the numbers of people who are going to be directly affected. Apart from the numbers of people who are suffering from AIDS and AIDS-related diseases we are concerned because the pandemic is having a major impact on the traditional kinds of programmes with which we are normally involved, such as preventative health care programmes, where the impact is being lessened because of the uncontrollable spread of AIDS. There is also the increasing number of children who are being orphaned as a result of AIDS, for whom the traditional structures of extended families are not able to provide sufficient

28 June 1989]

Mr PAUL SPRAY, Mr HUGH GOYDER,
Sister MAURA O'DONOHUE and Mr ROBERT REES

[Continued]

[Chairman Contd]

assistance. Further, there is the impact on programmes such as food production within rural areas that will probably be affected through a depletion in manpower. The national economies of some of the poorest countries with which we are working will also be stretched through the loss of skilled and trained professional people who it seems are some of the highest risk groups in certain parts of Africa. Given that the predictions are that what is happening in certain very badly affected countries such as Uganda and Zambia today will be repeated in many other African as well as Latin American and Asian countries in the course of time, we feel that it is a problem that needs to be kept high upon the agenda of any agency that is concerned with the problems of the Third World.

680. Thank you for your commendably brief introductions. Perhaps I may ask what Christian Aid's main activities are. It is quite clear what OXFAM's are.

(Mr Spray) They are much the same as OXFAM's, my Lord Chairman. We are supporting agricultural projects, primary health care projects, educational projects of an informal sort rather than schooling. We are not supporting the evangelical work of the church in respect of trying to win members; we are supporting the development work of the church.

681. And the same goes for CAFOD, does it?

(Mr Rees) Yes, that would apply to us. We are not involved in any of the pastoral work of the church. We try to make sure that the programmes that we support are well rooted within the village level communities, the grassroots societies, so that the problems the particular programmes are addressing are ones that are felt needs that have been identified by the communities and not imposed upon a particular society or community in any sense by some outside agency.

Lord Walston

682. Do you work on a multid denominational basis?

(Mr Rees) We certainly try to ensure that all our money is used for the benefit of the neediest people irrespective of denomination or religion or tribal group. We work very closely with Christian Aid on many programmes. We encourage our partners within the countries to collaborate as far as possible with their local counterpart church and with other religious groups, non-Christian groups as well, where appropriate.

(Mr Spray) In our case we would be working where possible with ecumenical bodies—councils of churches—in the countries with which we are concerned and particularly in South America with Roman Catholic groups in large number.

Lord Taylor of Blackburn

683. How do you find the causes that you are going to contribute to? What is the method of selection?

(Mr Spray) In our case it would be identified very

largely by the local organisations (we tend to call them "partner organisations"—forgive me if I slip into that jargon) that we are working with already. We define for every country that we are working in some rough sectoral and geographical concentrations of areas so we would say we want to work in agricultural projects; in the case of India, for example, we want to shift from a concentration in southern India to do more work in northern India because there are poorer communities in the north and less well organised communities in the north. We generally have no shortage of possible project, and it is up to us to try to screen them and choose the ones that would appear to be most effective.

Lord Thurlow

684. Can you give us a very rough and ready breakdown of the proportion of resources directed to each of the main continents?

(Mr Spray) In our case, if one excludes emergencies and special projects of one kind or another, it is about £4 million to Asia and the Pacific, £4 million to Africa and the Middle East and £2.5 million to Latin America and the Caribbean. Then there is a considerable amount of emergency money for special projects of one kind or another, which tends to mean that Africa gets very much more overall—it probably got in the region of £8 million or £9 million last year.

(Mr Goyder) On the question of how we identify projects, in our case we identify our projects through our network of field offices. These field offices now are largely staffed by nationals of the countries concerned. OXFAM has an overseas staff now totalling 600, of whom 500 work overseas, and the majority of those are locally employed staff. As to the allocation of our resources overseas, in the last year we have spent about 65 per cent of our funds in Africa, largely because of the very heavy expenditure for relief purposes, particularly in the Horn of Africa. Then we spent 16 per cent roughly of our funds in Asia and another 15 per cent approximately in Latin America.

(Mr Rees) Out of a budget of around £5.5 million last year which was spent on development programmes—the development money was considered separate from the emergency relief money—about 50 per cent was spent in Africa, approximately 35 per cent in Latin America and the balance in Asia.

Chairman

685. CAFOD's total is what?

(Mr Rees) The total for development programmes last year was about £5.5 million with an additional £4 million that we had received as a result of special appeals for emergencies and disasters, which was extra income.

686. How do you assess the needs of the developing countries? How do you choose the balance of your activities between the different areas that you have mentioned? Is it from the ground up?

(Mr Goyder) It is a more complex question than it might seem in OXFAM's case. I think primarily

28 June 1989]

MR PAUL SPRAY, MR HUGH GOYDER,
Sister MAURA O'DONOHUE and MR ROBERT REES

[Continued]

[Chairman *Contd*]

we have always been a responsive organisation; in other words, our aid budgets have usually been tied to sudden needs and requests for assistance. In respect of policies now, I think we are tending to reduce our expenditure in countries like India and Bangladesh, for instance, where we find that money is not the major constraint on development; in those countries we find that we need quite a large staff who spend a lot of time spending rather small sums of money. One reason for this is that there is a very active credit system in these countries. The major work of OXFAM is to try to unlock other people's resources and other people's money. However, in Africa where many countries are in a permanent state of economic and political crisis unfortunately we find a very different picture. OXFAM has grown very large—some would say almost too large—in places like Ethiopia and Sudan. In common with other non-governmental organisations we have taken on a fairly major responsibility for both immediate famine relief work and longer term work trying to prevent famines in the future and help governments' capacity to cope with famines and other natural disasters. In Latin America the picture is somewhat more like Asia: we have a much smaller number of staff and there our programme is strongly oriented towards social education and, in the case of Brazil, environmental programmes.

687. You have these people on the ground. How did you originally decide to have so many people in Latin America, so many in Asia and so on?

(Mr Goyder) I think the best answer, my Lord Chairman, is that like all good institutions it simply has evolved to meet changing needs. The overall budget tends to be set at the beginning of the year. By far the largest proportion of our money—45 per cent—is spent on emergencies. Any spare money that we have tends to go into emergencies. Unfortunately, in the last five years in particular that means Africa.

688. Is it a similar pattern in the other organisations?

(Mr Rees) For our case I would say it would be very similar to that. I do not think at any time in the past anyone took a conscious decision to say, "We will spend half our money in Africa". It has grown up with the organisation as our income has grown. We have tried to divert the extra resources that have become available to us to those places that we have seen as being in most need.

(Mr Spray) I would say broadly it was the same for us. We have attempted though to concentrate where possible. We still end up with funding 70 countries. However, for example, we do not fund in Nigeria. This is partly because on the African continent in the past it was not in the greatest need and was not one of the poorest countries; but more because we look to see where we can be most effective and because we are able to have a division of labour with some of our equivalent organisations, West Germany, Holland and so on, so that we can concentrate to a degree.

689. We have made a recent visit to Africa. One

point put to us was that sometimes projects do not carry on for long enough and are not sustained to get full value from the early work done. Would you care to comment on that? Do you manage to carry through your projects as far as you feel they should be or do you often have to curtail them because of lack of resources when some emergency arises and you have to divert funds?

(Mr Spray) I would say that that has become increasingly the case for us: we have attempted a longer term support. I was in Ethiopia last year. An agricultural support project with service co-operatives was initially supposed to last three years. That was clearly a completely false time scale, and we are now looking at eight years plus. Much of our funding now is to longstanding partnerships. We are looking to continue that funding and to engage in dialogue with the organisations that we are supporting rather than hope for an immediate response within three years and then being able to withdraw.

(Mr Goyder) I think many bilateral donors, including ODA, are often too impatient. Projects take very much longer to implement than the donors expect. OXFAM is often funding the same project for between five and ten years in some cases. One has to make a distinction to answer the question, between small scale income generating projects where we often find we can make a small input and even after one or two years the project can take off, and the many long term service programmes, particularly in health care where there is little prospect that the projects can even pay for themselves because people are just too poor to finance them in the long term. Governments in Africa particularly are often too poor to take over the activities. In these cases the donors, whether NGOs or bilateral, have to be prepared to give fairly long term support to these activities.

(Sister O'Donohue) My Lord Chairman, some of the same points that have just been raised would hold for CAFOD in regard to the long term support of programmes. Specifically in relation to the AIDS programmes, I think new issues are arising. If we are to try to help in the control and prevention of AIDS, we also need more long term support for the curative health services. This is an emerging concern and of greater magnitude as we get involved in programmes for the control and prevention of AIDS.

Lord Watson

690. Can you give us one or two examples of what you call a short term project and a long term project in which you are involved, and can you say into how much detail you go to?

(Mr Goyder) As an example of a short term project, we may help a small organisation or co-operative in India, say. We may give them a small sum of money that can act as a guarantee which they can use to get long term credit and perhaps start a long term relationship with the bank. The examples of longer term funding are probably the majority. Very often we are trying to help a particular community with, for instance, meeting their needs for health care or for education. In these cases we have to give

28 June 1989]

Mr PAUL SPRAY, Mr HUGH GOYDER,
Sister MAURA O'DONOHUE and Mr ROBERT REES

[Continued]

[Lord Watson *Contd*]

funding over a considerable period of time. It is the projects where we are making some kind of fairly short term investment in which one can look to an end to the funding. As regards how we assess these things, most of the work of our staff overseas is in trying to identify, assess and monitor projects as they go along.

Baroness White

691. Do you find that you have any influence at all with the official organisations either in the country or in the UK? Can you point out to them that too short a period can be a wasteful use of resources as well as probably disappointing to those participating? Do you have any channels of communication with the official organisations or do you keep yourselves to yourselves, so to speak?

(*Mr Spray*) Quite often when coming back from a country we would go and see the relevant country desk officer in ODA. We would not normally be making comments on specific British aid projects because we would not have seen them. There is of course an arrangement for co-funding of organisations like ourselves by the British Government called the Joint Funding Scheme, or JFS. There we have been able to obtain fairly long term funding from ODA for the sort of projects that we are arguing require long term input. To give another example of one that requires a long term support, we have just begun to support a new agrarian foundation in Brazil in part of the rain forest, which will be about £35,000 a year. That is large by our standard of funding and obviously small by ODA's. What they are concerned to do is to work with incoming peasant communities. It is an area where the rain forest has been to some extent destroyed by incoming peasant communities. This is an organisation set up to try to develop ways of sustainable farming that will preserve forest cover or replace it and provide an income for the people coming in. There is no way in which that institute will be able to have sufficient income for itself to keep itself going. We would reckon to be in there for quite a while, maybe ten years.

Lord Walston

692. That entails a high degree of expertise. Do you provide the expertise or do you provide the cash for that to be carried out?

(*Mr Spray*) In a case like that we are largely providing the cash. They themselves have links with local universities in Brazil so they are able to work on that. We sometimes make a link with a British university. There is a water project that OXFAM and Christian Aid co-funded where the University of Surrey water development unit has been involved in training nationals and in technical advice of one kind and another.

(*Mr Goyder*) Perhaps I may answer the question about our links with ODA, my Lord Chairman. Through our network field offices we have very close links now with the British embassy in the country concerned with the ODA staff there. I should point out that in a number of the countries where we

operate now OXFAM's budget greatly exceeds that of ODA. Ethiopia is an example in point. Where we find ourselves in that position we certainly try to lobby the ODA to increase its aid to the country in question.

Chairman

693. And to keep it going for a longer period?

(*Mr Goyder*) Yes, that would all be part of the dialogue that we maintain with ODA. There are then countries like Cambodia where OXFAM has a very large programme, but sadly there is no British aid to Cambodia. We hope that that situation may change in the next few years.

694. What about the emphasis that you attach to training and the development of local capabilities, which are sometimes in opposition to spending the same resources on getting some project going which is more visible, while training takes longer to be effective? Do you find choosing between the two a problem?

(*Mr Goyder*) In OXFAM's case we very much emphasise always the training of local people and the building up of local institutions. One of the problems that we have had in recent years is that we have been rather forced to take up operational projects in Africa particularly in response to famine and other disasters which have been expensive for us and have tied up a lot of our fairly limited management capacity in such activities. Our philosophy therefore is very much to build up local resources in the long term. As you emphasise, that is a much more long term process without so many visible results.

695. What about CAFOD?

(*Mr Rees*) As I said earlier, my Lord Chairman, we put a great deal of emphasis on structural support for local organisations, our partner organisations, and this often entails supporting the training costs of key personnel within those organisations. That sometimes necessitates bringing them to Europe for training which is available only here. However, we try wherever possible to look for appropriate training courses within the region, whether it is Latin America or Africa. Therefore, the needs of the individual will be met by local facilities and local resources, and the training given will be of a more appropriate nature than is often available here. On a much lower level, many of the leadership training programmes with which we are involved at village level involve training of community leaders, leaders of women's groups, action groups, people who are going to take initiatives within their community in future and to mobilise the community to help to formulate development programmes appropriate to them.

(*Mr Spray*) That would be very much the sort of policy that we would follow. We have a number of scholarship students here in Britain as part of the Christian Aid programme, at present, about 30, for whom we are paying ourselves. Again, however, we prefer to train in-country. With a number of our partner church organisations we are sitting down (not just as Christian Aid but with our equivalent

28 June 1989]

Mr PAUL SPRAY, Mr HUGH GOYDER,
Sister MAURA O'DONOHUE and Mr ROBERT REES

[Continued

[Chairman Contd]

church development agencies from Europe), and discussing their personnel needs over a long period of time and agreeing training programmes with them and funding arrangements for them.

696. Do you have problems in finding the right balance between training people and providing them with the equipment that they need to do their work, whether it is vehicles, health care equipment or educational publications?

(Mr Spray) We do very little of providing equipment coming from Britain. The bulk of our money I would say tends to be spent on people, either paying their salaries or paying for training.

(Mr Goyder) OXFAM would look at each case on its merits. We are trying to fund different projects to achieve certain results that we have agreed with the people who run the projects. Inputs will therefore vary in each case. In some cases it would be funding training and staff salaries; in others we need to equip organisations sometimes with vehicles and other equipment. In countries hit by the debt crisis in Africa I would emphasise that we now have to supply them with anything that has to be imported.

(Mr Rees) Very much the same would apply for us. We try to restrict our activities to the provision of funds rather than providing equipment. For one thing it necessitates a big logistics department to purchase and deliver equipment to many countries within Africa. We would encourage our partner organisations to look for a local source of supply so that if they have any difficulties they can go back to the supplier themselves and raise any problems with them rather than expect us to follow up on their behalf.

697. Do you find there is adequate scientific and technical support from other people for work in your field?

(Sister O'Donohue) In relation to the AIDS programmes, here we are having some difficulties because the AIDS pandemic is a recent event. There is new technology and equipment required, and this raises new issues and problems for us. We work very closely with the WHO Global Programme on AIDS in each country. As an organisation CAFOD tries to ensure that the guidelines of the national programmes drawn up by the local governments are followed. However, the provision of equipment such as the HIV testing kits and so on can be a major problem for us, particularly providing them locally in-country. Because of the pandemic we find it is necessary to have a new look at the standards within the health services already in existence. This would include sterilising equipment, a sufficient supply of syringes and laboratory supplies and so on. These are a new concern for us.

Lord Walston

698. Rather more generally but applying very much to what you have just said, how do you keep in touch with the centres in this country that are doing the latest work on AIDS, in the Brazilian case, the forestry and reforestation or preservation of the environment, and indeed in many other ways?

Do you do it purely through your own contacts which have been established over the years or do you have some more formal method of making contacts?

(Sister O'Donohue) In relation to AIDS, CAFOD has had observer status in the WHO Global Programme for AIDS at the management committee meetings, so we can follow trends. At a national level CAFOD is the liaison agency for the Caritas international network, with more than 100 national member organisations in different countries. We work through the national Caritas offices. These offices also work in close liaison with the national AIDS programmes, the five-year or mid-term plans drawn up together with WHO. Thus we ensure that the programmes with which we are involved with our partners follow the guidelines set up by WHO under the national governments.

(Mr Rees) If I may add to what Sister O'Donohue has said, in addition, in Britain there is an NGO consortium of agencies concerned with the AIDS problem, which meets three or four times a year. It is a forum for meeting professional people from the medical world and to develop links with commercial companies that are involved in research in this respect. We find it very helpful and effective.

Lord Thurlow

699. In his initial remarks Mr Spray referred to agricultural research and biotechnology. Would he like to say anything at this point on those subjects?

(Mr Spray) In respect of agricultural research, we are generally concerned in the countries overseas with very low level support. A farmer in Ethiopia whom my colleague saw last month had a head of wheat in his field which he had identified a couple of years ago as having a larger head than the previous ones, so he had planted it out and it was replicating itself on the field. Two years later he had a little corner of wheat when my colleague saw him rather than the one head. That sort of initiative at farmer level had no contact at all with scientific backup, people who might look at it and replicate it themselves. That kind of support is very important. It links to the third point that I wanted to make about the impact of the lack of resources in some Third World countries today, particularly those where government spending is constrained by debt or whatever. If there is an agricultural research department that is unable to travel because they will pay salaries but do not have funds for vehicles and so on, that is obviously a major constraint on the use of science in the field for the farmer in question. Biotechnology is a rather different issue where the World Council of Churches Commission on Church and Society is about to produce a statement, and this concerns a number of other international organisations with which we have links—the European Ecumenical Coalition on Development and so on. There we are gathering scientific information not as Christian Aid but as part of a wider group of NGOs. Given our size we cannot have the contacts with many different scientific organisations ourselves. We are, however, able to work with a number of non-governmental organisations. On biotechnology, what concerns us

28 June 1989]

Mr PAUL SPRAY, Mr HUGH GOYDER,
Sister MAURA O'DONOHUE and Mr ROBERT REES

[Continued]

[Lord Thurlow *Contd*]

is the danger of developments leading to peasant farmers suffering in the way that cottage manufacturers suffered in the case of the industrial revolution. At its most exaggerated that is the danger, that what is being produced by the bulk of Third World farmers may become more readily producable by large companies employing rather fewer people. On the one hand there is that. We are also concerned about patenting. In 1981 Christian Aid produced some evidence to the House of Lords about the whole issue of patenting of life forms. I understand that there is a European Commission Directive¹ which is to be discussed by the Council of Ministers towards the end of the year, so there is a very real and immediate issue about patenting, with which we wish to be concerned. Another point on biotechnology is the lack of research on biotechnology that might be appropriate for small farmers. Again, it is in no one's particular interest to fund that research so there is a danger that the bulk of research will go not to resource-poor farmers but to farmers who command capital resources that they are then able to invest, which of course are not the ones we are working with most.

Lord Butterworth

700. So you have fears about biotechnology. What is it that you wish to do; what would you like to see happen?

(*Mr Spray*) On the one hand I think it would be useful if research was funded that was specifically aimed at seeing whether biotechnology is of use to small farmers with very little resources of their own, so it is a particular kind of research. I think something like the Overseas Development Natural Resources Institute here might be able to do it or at least to direct it elsewhere. A second point is to do with patenting. There I think in the main we need to hold off a decision that life forms can be patented until some more work has been done. Secondly, we want to make sure that whatever decisions are made the Third World still has access to things that are patented, and some sort of reward for genetic resources that come from the Third World. A country like Ethiopia, for example, has tremendous genetic resources with an enormous variety of types of crop of one kind or another. That will be of immense value to the world, and it would seem important that Ethiopia gets something out of it.

Chairman

701. Have you discussed these problems with the ODA?

(*Mr Spray*) We are aware that they are doing something on it. We have had a telephone conversation with them but we have not taken it forward. This is an area where we are getting a long way away from the work of our partners on the ground. Therefore, there is a limit to the extent that we can take it forward as Christian Aid. We would often be working in conjunction with the relevant part of

the World Council of Churches or suchlike, but we cannot do an enormous amount ourselves although we are very concerned about it.

Lord Walston

702. Is there not at least a potential contradiction between what you said previously in being opposed to the patenting of biotechnological research and results and thinking that Ethiopia ought to be rewarded for its supplies of rare or unique genetic material.

(*Mr Spray*) Yes, clearly those two could be contradictory. I think what we are opposed to is the extension of patenting at the moment. We are not necessarily saying that it should never be patented but that to move at the speed that the European Commission appear to want to would seem to ride over a number of these important issues which need further consideration.

Chairman

703. We have been told by some witnesses that because of the years that have passed since independence in these countries there is a growing problem in getting well-qualified British staff to work overseas in the fields in which you operate. Do you have any problem like that? Do you identify that as a growing problem?

(*Mr Goyder*) Yes, my Lord Chairman, I think that we do. I think there is a mismatch between supply and demand. We find that there is a plentiful supply—some would argue an excessive supply—of people prepared to work overseas for a very short time, people like consultants who are used extensively by ODA and other donors. However, there is probably a shortage of people who are prepared to serve overseas for any length of time. When one is working at the sort of level with which OXFAM is concerned, which is the community level, issues like language and cultural sensitivity are very important. One has on the whole to be able to communicate with the people we are trying to assist. Therefore, we want people to stay perhaps between two and four years. This problem becomes most acute when we are trying to employ specialists overseas. While we do not employ large numbers of specialists, in Africa particularly there are constant demands on us for people like medics, water engineers, agriculturists and for people who can train the trainers. For all these sorts of people it is increasingly difficult for us to get hold of mature people in middle life who have plenty of experience in their own countries and have something to offer where they are going. We do not want to employ people as volunteers because OXFAM pays more or less a British professional salary to the people we have overseas. We find increasingly that it is difficult to get people out of their professions. We think that Britain could do very much more working with the major professions, particularly the medical and teaching professions, to try to get these professions to work out schemes that positively encourage mature specialists to go overseas for periods of between two and five years. It

¹ Draft Council Directive on the legal protection of biotechnological inventions.

28 June 1989]

Mr PAUL SPRAY, Mr HUGH GOYDER,
Sister MAURA O'DONOHUE and Mr ROBERT REES

[Continued

[Chairman *Contd*]

should been seen as an asset to their careers rather than, as at present, a handicap if one spends too long overseas.

Lord Walston

704. OXFAM clearly has a close relationship with VSO, and I imagine that the other organisations would also. Do you find that volunteers not necessarily immediately but after a while show more inclination to go overseas on a longer term basis, or is there no correlation?

(*Mr Goyder*) There is a strong correlation. I would say the majority of the British staff working in OXFAM have worked at one time or another as volunteers; indeed, many of them have worked with VSO.

(*Mr Rees*) We are very rarely in a position where we are looking for people to work overseas. We do not have any direct representation of our own, as we said. Occasionally one of our partner organisations will ask us to recruit somebody with specific skills to go to help them for a limited period. We would much prefer to look at it in the longer term and see what we could do to help with the training of people whom they would put forward themselves as the suitable people for training who have the interest and the commitment and would then be prepared to return to work with them afterwards.

Chairman

705. Has OXFAM any particular solution to the problem of getting adequate staff?

(*Mr Goyder*) The main solution we are following is to recruit more and more from staff whom we have often ourselves helped train in the countries concerned so in fact we are trying to reduce the numbers of people required from this country. That is the major solution that we are following. In Asia now we have very few expatriate staff because there is a good surplus of very well qualified people to fill the jobs we want done there. However, I think our concern remains with Africa. There are countries like Mozambique, for instance, where there is an enormous shortage of qualified people and a continual demand for specialists and trainers. As I said before, we would like to see some of the professions taking this up more seriously and giving some kind of positive encouragement to their mature staff to go overseas.

706. May we pass on now to the role of ODA. Do you find ODA's procedures for the support of voluntary organisations satisfactory or do you have any ideas for improving them?

(*Mr Spray*) In our view they are in fact satisfactory. We also take money from the European Community, whose procedures are more cumbersome. We think that ODA had expanded its NGO funding quickly without necessarily expanding its staff to deal with it quickly. The office in East Kilbride with which we relate on very friendly terms—we are able to ring up and ask questions—is getting very overworked. It would be helpful to us if they had a couple more members of staff up there.

707. Is the result that it slows up responses to your applications?

(*Mr Spray*) Yes, we cannot get through on the 'phone because they are talking to somebody else.

Lord Walston

708. It is more because they are short of staff than because they are in East Kilbride?

(*Mr Spray*) Yes.

709. You do not mind their being a long way away?

(*Mr Spray*) No, the telephone works equally well to East Kilbride.

(*Mr Goyder*) In OXFAM we are the largest user of what they call the Joint Funding Scheme, from which OXFAM draws £3 million a year. We have an internal rule in OXFAM that we should not take more than 10 per cent of our total income from ODA. At present, as I say, we are taking £3 million a year. We could, within our own rules, increase that to £5 million, and I hope we will do that over the next few years. We have no quarrel at all with the ODA on the Joint Funding Scheme. It is extremely efficiently administered. For every pound that OXFAM puts into a project, ODA matches with a pound.

Chairman

710. On agreed projects, not automatically?

(*Mr Goyder*) On agreed projects up to a ceiling amount which is known as a "block grant". In addition to the Joint Funding Scheme there are special grants. The special grants include very large amounts of money for emergency programmes. I should point out that these funds are often approved over the telephone between our emergencies office and the ODA disasters office, which is a most efficient system. We have no complaints therefore on that score. Indeed, I would support what Mr Spray has said about the EC funding. We are still locked into the EC bureaucracy, and have been unable to get the amounts of money that we would like to get from the EC for project funding although we know that the money exists.

Lord Taylor of Blackburn

711. Forgetting about emergencies, for a project that has been talked about and for which you are putting up proposals, is there such a thing as an average time for how long it takes?

(*Mr Spray*) ODA have given us a block grant—all three agencies represented here have a block grant every year. They tell us what we can spend every year. This year we can have £1.7 million. Within that we submit to them the projects that we would like them to fund. Normally they will agree them. Occasionally they will return one. If they do return one, we can just put in another one. This means in effect that we approve money at our own committees as if it was Christian Aid money, then ODA will reimburse projects of which they approve. The fact that it goes for ODA funding does not hold up approval procedures for a day. It is very efficient from that point of view.

28 June 1989]

Mr PAUL SPRAY, Mr HUGH GOYDER,
Sister MAURA O'DONOHUE and Mr ROBERT REES

[Continued

Lord Walston

712. Do they often turn down a project that you put up to them?

(*Mr Spray*) No. I think from our last submission there were two that were put back. We use this block grant in a way that is very helpful to us. Some other non-governmental organisations that do not have block grants cannot do this. We use it to submit really quite small projects. I think we have put as many as 300 projects to ODA, and in some cases ODA are putting in only £1,000. If one had to make a one off application for ODA, they would say in fact that was too small. The irony is that because we are a sufficiently large organisation we can put small projects to ODA in a way that other organisations cannot.

Lord Butterworth

713. Do they require you to relate to any kind of principles? Might they turn down a project in that it was not consistent with the kind of principles on which they were applying their aid at the time?

(*Mr Spray*) Yes. They have a single sheet of principles that no doubt they could supply to you. They are working at present on producing some rather stronger guidelines. In the case of the block grant agencies they have in effect said that they agree with our basic principles. They have had a number of evaluations over the years whereby they will do an evaluation of our programmes and come to conclusions about the way that we do it.

(*Mr Goyder*) One of the problems we have faced with them is there are restrictions on what countries the ODA will support projects in. I do not know where it stands at the moment, but we have only very recently managed to get some ODA assistance for our projects in Cambodia where we have a very large programme. However, that was obviously for political reasons: they were not happy about ODA funds going to Cambodia until it is internationally recognised. In the past we have also had problems about getting money for work in Vietnam from ODA and, going back a bit further, Ethiopia; but I am glad to say that we do now receive ODA funding for our work in Ethiopia. I am not sure what the present position is as regards Vietnam. There always are a small number of countries where we have fairly active dialogues with ODA about whether or not we can get funds under the Joint Funding Scheme for work in those countries.

Chairman

714. Do you see any trends or innovations in other donor organisations that you think the British aid programme might adopt with advantage?

(*Mr Spray*) I think we know too little about British aid projects outside the NGO field and particularly about other donors to be able to make very helpful comments. One point that affects us is that ODA will not fund development education in this country, which we think is very important. The European Community does. For that reason we take European Community money for that.

715. If we may go back to EC funds, would there be anything to be said for asking ODA to become your agent, so to speak, in some way to cut through all the administrative undergrowth to get EC funds? They have bigger staff. If each of you applies, it must take a lot of time with limited staff?

(*Mr Spray*) We employ two staff full time as European Community officers, who are partly concerned with European Community policy but mostly with extracting money from the European Community. Our experience is that if you line up the hoops in the right way you can get money from them. The major problem is delay. It takes at least six months and can take 12 months to get approval from the European Community for a project, and they do not operate a block grant system except to a very small extent. I think their problem is one of staffing and simply that the budget line is smaller than the total number of NGOs from around the European Community applying for it.

Lord Walston

716. How much do you actually get from the EC?

(*Mr Spray*) Last year we got about £2.5 million one way and another.

(*Mr Goyder*) Last year we got about £1.8 million.

(*Mr Rees*) I would not be able to put a figure on it. In general in terms of the relationship with the EC I think we would prefer to continue to struggle to improve those links rather than think of any other body coming in as intermediary. There is a UK NGO liaison committee, and a liaison committee for other European NGOs, which links directly with the EC. Part of their function is to struggle to get speedier communications and speedier responses from the EC for the NGO programmes. Perhaps I may return to the earlier question about ODA funding for programmes. While I would support everything that my colleagues have said about the Joint Funding Scheme and the responses to emergency needs, I would like to return to the AIDS problem, which I think we have made fairly clear is one of the principal concerns for us. We are very concerned that ODA is not prepared to consider any requests from NGOs for AIDS-related programmes. ODA's position is that it has given a block grant to the WHO Global Programme on AIDS. Whether ODA considers this to be a sufficient response or whether it has yet to be convinced that the role of the NGOs is complementary to rather than competitive with the work that the WHO funded programmes do, I do not know. However, we would very much like to see the ODA prepared to commit funds directly for programmes implemented by NGOs that are reaching sections of the affected population that as yet the WHO programmes and national AIDS-related programmes within Africa at least are not yet reaching, simply because the funds that will be required for the programmes will be beyond the present resource capabilities of NGOs.

Chairman

717. You would like to see more funds available for this cause obviously, but within the limits of

28 June 1989]

Mr PAUL SPRAY, Mr HUGH GOYDER,
Sister MAURA O'DONOHUE and Mr ROBERT REES

[Continued

[Chairman *Contd*]

present funding would you prefer to see some of the money diverted from WHO to NGOs? Do you believe that that would be more effective?

(*Mr Rees*) If it was a choice of one or the other, I would like to see at least the ODA recognising the fact that NGOs have a unique role to play in response to AIDS. If this does mean a diversion of a certain proportion of funds, then yes; but obviously we would like to see a greater total commitment.

718. If it was going to be additional funding, what sort of sum do you have in mind of which CAFOD could make good use?

(*Mr Rees*) Since we started our involvement with AIDS-related programmes two years ago we have committed about £750,000 for AIDS programmes. We have on our desk at the moment requests for funds equalling that amount again which are needed immediately for programmes directly related to AIDS. Undoubtedly we shall see a very great increase in the number of requests coming to us in the coming months and years for this kind of programme.

719. As a start you would be very pleased if you could get £1 million?

(*Mr Rees*) We would be very pleased, yes.

Lord Thurlow

720. Would you consider the programmes you support can be regarded in a sense as a field laboratory which is complementary to anything that WHO has going on?

(*Sister O'Donohue*) I think it is much more than a field laboratory. There are a whole lot of areas drawn up by local governments and WHO in national programmes for the control of AIDS which initially only included improvement in the institutional health services but it was later realised that counselling training and training of community health workers at the level of providing home-based care for patients with AIDS were priority needs that had been overlooked. The church-related and other NGO programmes in fact piloted these kind of programmes, but without aid from government or from the WHO Global Programme on AIDS. It is these areas that need to be looked at. This is particularly so when one considers that Uganda, Tanzania and Kenya have approximately one third to one half of their health services provided by NGOs. These are countries where there is quite a problem from the AIDS pandemic.

Lord Walston

721. Are your activities primarily prophylactic or therapeutic or welfare?

(*Sister O'Donohue*) Therapeutic, no, because for our programmes we are not even being asked for the kind of treatment that we would have here in the industrialised countries. We are being asked for medical supplies to alleviate suffering, not for the kind of therapeutic supplies one would have here, as an example, the AZT or pentamidine, the kind of drugs that are very expensive. We are not asked

for anything like that. We are also asked for HIV testing kits. We are asked for vehicles and support for mobile home care of patients. There is of course a strong emphasis on education campaigns and counselling training. These are some of the areas about which we are asked.

Chairman

722. Does Christian Aid have any points on AIDS? Do you have activity in that area?

(*Mr Spray*) Yes. Some of the Council of Churches have been involved in this area, for example, Zambia has taken a large role. The Salvation Army in Zambia has been pioneering a number of programmes based on a hospital but largely concerned with care in the community. It is a problem that is increasing very fast, and we shall be asked to fund it more. The Christian Medical Commission of the World Council of Churches, with which we relate, has been concerned with AIDS over the years, particularly on the importance of education.

723. Do you believe that quite substantial further funds could be well used in respect of AIDS?

(*Mr Spray*) Yes. We do not ourselves fulfil the same role that CAFOD fills in being the centre of the Catholic network on AIDS. We would be relating more to our German equivalent on that. The main thing about it is that it is going to grow remarkably quickly over the next five or ten years when there will be a geometric requirement for funds, and that is what needs to be taken on board.

724. Should not more effort be made to try to do everything possible to prevent that growth or to reduce the rate of growth?

(*Mr Spray*) Yes, undoubtedly.

(*Sister O'Donohue*) This is true, my Lord Chairman. This is one of the areas on which we are all trying to concentrate and where the government national AIDS programmes are calling on the NGOs to commit themselves to it and to make a contribution in this field. However, as we know, the question of prevention revolves round changed behaviour. This takes time. Meantime the infection is spreading. Therefore, we cannot say we can just ignore the people who are already infected or who are suffering. It means that the two approaches have to be simultaneous. There is certainly a big emphasis being placed by the NGOs on education in this respect.

725. Is enough done in your view by way of advertising, posters, pamphlets?

(*Sister O'Donohue*) I should have reservations about that, my Lord Chairman. If the education programme takes place in a particular location this month, in another six months' time it will be another population. If one takes a school population, for example, it will be another population that will need the same education. In addition people tend to forget, so that it has to be ongoing.

Lord Walston

726. Would you confirm what has been said in a good many countries—central Africa in particular—

28 June 1989]

Mr PAUL SPRAY, Mr HUGH GOYDER,
Sister MAURA O'DONOHUE and Mr ROBERT REES

[Continued]

[Lord Walston *Contd*]

that it is very largely the young to middle aged and the better educated people who are affected? Therefore, quite apart from any of the human aspects of it, the economic aspects in the decades ahead are very serious because people who should be leaders of the community will no longer be there?

(*Sister O'Donohue*) From my trips to east and central Africa I would certainly support that fully. As your Lordship has mentioned, the groups that are being affected are the educated, almost the educated elite, initially. The infection is spreading also right into the rural communities. In some surveys it has been detected that the main group that is free of infection is in the ages 5 to 15 because one has vertical transmission from mother to children or babies so that the under-fives are now being infected. This too is an area of growing concern. The economic implications are very great from the point of view of food production, as already mentioned, and in respect of the mining industries, coffee growing and tea growing plantations, the army and police forces with consequences for political stability and so on. There are many implications.

(*Mr Goyder*) OXFAM obviously supports all the various initiatives that we have been discussing. In addition we have another concern. It is that the battle of AIDS is fought against the background of declining government budgets for health and, indeed, declining standards of health care, particularly in Africa and in debt affected countries. There is a risk that more money might go into AIDS at the expense of desperately needed finance particularly for primary health care in all these countries. I think there is an additional issue here which ODA and all donors have to confront. Probably the only way of tackling AIDS is more money for AIDS in the way that we have been discussing but also considerably more funding for primary health care in all these countries.

Chairman

727. We have had some discussion already about whether ODA and other aid donors take a sufficiently long term view. Is there anything you would care to add on that? Moving on then, do you collaborate in multilateral schemes as well as ODA funding?

(*Mr Goyder*) We prefer to say, at least with regard to the largest multilateral, the World Bank, that we have a dialogue with them rather than collaboration. It is a fairly active dialogue which over the last few years has covered issues like the Environment. I think NGOs in general—not just OXFAM but many European and American NGOs—have led a fairly major critique against the World Bank on the environment. There is now a World Bank/NGO liaison committee in which a number of NGOs participate. Through this committee and other contacts we feel that we have fairly good access to the World Bank and I think now they have cleaned up their act, particularly on the environment. They have set up a new environmental unit. I think we are fairly happy with the way that the Bank is facing up to environmental issues. When we are criticising multilateral

donors I think we find that a lot of the schemes that we are criticising due to their environmental impact are not in fact thought up by donors but have come from provincial or central governments. The main difference between NGOs and government donors clearly is that we as NGOs are able to criticise and question a lot of the schemes by governments but we often feel official donors have tended not to scrutinise adequately all schemes coming from governments. We think this is now improving. As to other multilaterals, we have very few specific projects with the United Nations. The major problem area we have in our disaster work particularly is in relation to the United Nations High Commission for Refugees, UNHCR. We see refugee problems increasing all the time. We feel very strongly that the management capacity of UNHCR to tackle some of these emergencies is very limited. We know they have a mandate which sometimes excludes them from operational work; they often come requesting assistance from NGOs setting up camps or emergency water supplies and so on. We are constantly critical—we have taken these issues up with ODA many times in the last year—of their record in relation to specific refugee crises where we are working with UNHCR on the ground.

728. Could we go back to the point that you raised in the beginning about future needs in respect of Christian Aid? How do you see this evolving in future in developing countries? Do you think that you are set up in the right sort of way to deal with them?

(*Mr Spray*) I think it is clear that the bulk of the poorer people will still be in the countryside. There is a major shift going on into urban areas so that the urban poor will increasingly be a problem. The bulk, however, will still be in the countryside. A common cause among the development studies community in Britain and NGOs is the necessity of supporting resource-poor agriculture, farmers who do not have a lot of resources of their own that they can invest. To find sustainable methods of production and to support them particularly in farmer directed research at very basic level is clearly and immediately the need of farmers. To refer again to my recent Ethiopian trip, I stood in one agricultural demonstration field where various varieties of sorghum were being grown which I discussed with some local farmers—through interpreters—and it was clear that the bulk of the varieties being grown in the field in question were inappropriate because they were too short. The farmers needed the stalk either for feeding to their animals or for building materials. It is that kind of linkage between the immediate needs of the farmer and the research which will be necessary. We support a number of small projects of the kind that I have just mentioned in Brazil which do that kind of thing. In the evidence that the Overseas Development Natural Resources Institute (ODNRI) submitted they are changing emphasis on pest control: they are moving to look at pest control in a specific area rather than looking at specific pests and concentrating on the needs of small farmers. That seems to me exactly the kind of research that the British Government could fund that would be of

28 June 1989]

Mr PAUL SPRAY, Mr HUGH GOYDER,
Sister MAURA O'DONOHUE and Mr ROBERT REES

[Continued

[Chairman Contd]

direct benefit to the sort of people with whom we are concerned. The other thing that looks continually to be the case for Third World countries is the shortage of resources at government level. The present level of scientific infrastructure is very worrying. We would support a government decision that if one has few resources it should go to the basic needs of people for health, education and so on, but it is hopeless if there is not a basic minimum of scientific institutions available. In Latin America the water research departments of various kinds—hydrological data collection—seem to be sacrificed all round. Somebody was telling me—again this is purely anecdotal—that in one particular country the entire hydrogeological department no longer existed either because the government did not have the funds to fund it or because people had left because the salaries that the government could afford to pay were so low that the professionals moved elsewhere. Some basic level of primary health care service and medical support to primary health care service, of water data collection and of agricultural research capacity is essential. Maintaining those local, nationally based institutions surely should be fairly high on the priority of British Government's aid policy in this area. There are ways that one can be cost effective. Clearly there has to be a premium on research being cost effective. Ten years ago I was marginally involved in a geological project that the British Government were funding in Botswana, which was extremely good at looking at ways in which one could obtain information about the water availability in an area where there was no rainfall anymore so the water was all fossil water from eons ago. They designed systems which were very effective in finding information cheaply. But there is no doubt about it: there is a limit to the extent that one can take cost effectiveness. It is true all over; it is clearly true in the health system.

(Mr Goyder) It is a vast area, my Lord Chairman. Just looking at the macroeconomic position of different countries, I think we would be very worried that what will happen is that the middle income countries will take off, and indeed already are taking off, countries like Thailand, in which OXFAM does not have a programme and will not need to, leaving the poorest of the poor countries, most of which are in Africa, though not exclusively. We very much share Christian Aid's concerns about the national capacities and the degree to which, say, the British Government's investment in research is strengthening these national capacities. I personally am rather critical of some of the international research funding because I suspect that much of that money finds its way back into the pockets of western scientists rather than really helping poor farmers or poor pastoralists in Africa. That is anecdotal evidence, but it is a perception that I think is shared by a number of people in NGOs that we are funding to a degree the wrong sort of research, and perhaps that requires a rather sharper evaluation by ODA. In the long term we see that there is a need for OXFAM to fund a dynamic non-government sector wherever we can. We are also now working much more closely

with governments, particularly at local level. We quite welcome that. That is certainly a trend of the future. We are now much involved in helping government at local level implement its own development scheme. We see that as a positive kind of development. However, I think we are very worried about the future, particularly in those countries with very large debts, and we are critical of some of the moves made by the IMF and others on structural adjustment. It is not that we criticise the economic theory; we do, however, criticise the impact of those programmes on ordinary poor people, both rural and urban poor, both of whom are suffering in different ways from this.

729. Can you give an example of organisations that are ineffective and not cost effective?

(Mr Goyder) I know a little about livestock research. The International Livestock Research Centre in Ethiopia has had some quite good schemes for research into goats and camels. In recent years I know that it has had to change its perspective and it is now putting more of its investment into research into cattle, and particularly into dairying, because it is felt that it is more economic in their terms to support research in dairying rather than supporting the animals of poor people, who tend to have goats rather than cattle. Similarly on crop research, governments faced with foreign exchange crises clearly put more money into export crops rather than the key subsistence crops like millet.

730. Do you think more should be done to bring to the attention of the farmers to whom you referred simple tools which they can use effectively for planting and cultivation?

(Mr Spray) Yes, it is very often a question of production of the tools there and then on site. One thing that was noticeable on my recent trip to Ethiopia was that farmers preferred the locally produced—blacksmith produced—tools partly because of the design but also because in their case they were better quality than the imported tools. Curiously, what they insisted upon was a supply of car springs. Apparently if you wish to make a good agricultural implement you start with a car spring!

Lord Taylor of Blackburn

731. Is there any duplication in what you do?

(Mr Goyder) One should realise that there is now an enormous number of non-government organisations—I cannot count the number that there are. Typically in an African country one may now find 50 or more—100 in some cases—international NGOs working there. I think considerable efforts are now being made for co-ordination of agencies. I would be misleading the Committee if I was to pretend that it was not a problem. All aid donors face a problem of co-ordination, and there can always be more co-ordination. I think people are now all aware of this as a problem, and we are trying to work together to solve it. Indeed, many governments now have fairly efficient ministries who try to cope with NGOs and make sure they co-ordinate their efforts in a sensible fashion.

28 June 1989]

Mr PAUL SPRAY, Mr HUGH GOYDER,
Sister MAURA O'DONOHUE and Mr ROBERT REES

[Continued

Chairman

732. We have had a very long discussion, but perhaps I may ask one other question. Do you see a lot of problems in respect of corruption, the diversion of resources that you produce, either in money or in other ways for wrong purposes?

(*Mr Spray*) In respect of the resources that we ourselves are granting, we have not found large problems of corruption. There are not a lot of cases where the money has been misappropriated. Obviously one does have some. Possibly it is because we are working through church channels, though maybe one should not make too much of that. In some countries it is clearly an endemic problem. It is hard to define it as "corruption" in the case of someone who is not paid remotely enough to live on.

(*Mr Goyder*) In regard to the fairly small projects that OXFAM is supporting, it does arise in a number of cases, but the sums involved are usually rather small. Our major concern is not with corruption in the projects that we are funding but with the general atmosphere in the country concerned. I would very much agree with my colleague from Christian Aid

that the economic and political pressures on government people and staff who may or may not get paid at the end of the month lead to this kind of thing and, indeed, the problem is getting very much worse and I think will continue to get worse.

(*Mr Rees*) I would agree with that fully. We occasionally come across problems where our local partner is suffering from some corruption within its structure. It is a problem that they have to work out themselves. We are prepared to help them where we can. However, that will always be the case. Where there are people involved occasions will always arise when money is used for purposes for which it was not intended. But again there are usually many factors behind it all. When any person in the poorer countries in Africa has a regular salary he automatically becomes the breadwinner for ten or 15 people so it is very understandable.

Chairman] Thank you very much. We are most grateful to you for answering all our questions so helpfully and, if I may say so, commendably concisely. We have got through a great deal in a reasonable period. We wish you all well in your excellent work.

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(SUB-COMMITTEE I)

Wednesday 12 July 1989

AGRICULTURE AND FOOD RESEARCH COUNCIL

*Professor W D P Stewart, FRS, Professor J P Hearn
Professor J Matthews and Professor J Bourne*

*Ordered to be printed pursuant to the Order of The House of Lords of
29 November 1988*

LONDON

HER MAJESTY'S STATIONERY OFFICE

£3.80 net

WEDNESDAY 12 JULY 1989

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Lockwood, B.	Taylor of Blackburn, L.
Perry of Walton, L.	Walston, L.
Shackleton, L.	

Memorandum by the Agricultural and Food Research Council

1. The Agricultural and Food Research Council is committed to strengthening links with developing countries (DCs). Agriculture, and the biological sciences which relate to food and fuel production, the conservation of resources and the environment, provide the basis for sustained increases in food and fuel production in DCs.

2. Projected increases in population in the DCs will maintain the demand and increase the absolute requirement for food and fuel. The top priority in programmes of overseas aid therefore should be to increase food and fuel production and industrial crops, where appropriate. This priority will not change in the foreseeable future.

3. The Agricultural and Food Research Council (AFRC) was founded by Royal Charter to undertake research in agricultural sciences and related disciplines. The AFRC receives funds from the Science Budget, from MAFF and from other sources with which it conducts research in eight institutes and in University based groups. The total funding available to AFRC in 1988-89 was £122 million.

4. AFRC's research programme is primarily basic and strategic work in the biological sciences, from which knowledge is gained to increase the efficiency of agriculture, food and other biologically based industries. The programme also provides for the improvement of quality and safety of food, while conserving the environment and lessening the ecological and social consequences of change, following altered patterns of agriculture.

5. The AFRC's programmes and expertise are therefore relevant to the applied research work and practical interests of the DCs through the provision of a knowledge base, and through training in research methods and management.

6. AFRC's most recent Annual Report details some of this research and also describes research done directly in aid of developing countries in particular by the Overseas Division at AFRC Institute of Engineering Research, which has made a separate submission. The AFRC's scientists and institutes provide an unrivalled resource for training scientists in all aspects of research in the agricultural and supporting sciences.

7. Rapid developments in biological sciences will lead to a widening of the scientific gap between developed and less developed countries. It is timely that the House of Lords Select Committee on Science and Technology is considering the UK's scientific and technical aid to developing countries.

8. It is against this background that AFRC offers its comments and suggests where it might help.

Objectives

9. The primary purpose of any overseas aid for agricultural purposes is to develop and maintain sustainable food and fuel production. Within this primary objective, agricultural research should provide the means for increasing the volume and improving the efficiency and sustainability of production within environmentally sympathetic systems.

10. Political, commercial, trade and short-term financial objectives may distort and obscure more appropriate and long-term objectives. The understandable desire to offer immediate aid for immediate problems has also obscured the need to identify and address long-term objectives and requirements appropriate to R&D needs for food production overseas.

11. Training and working with a cadre of young national scientists, and supporting and developing the scientific infrastructure, are relevant objectives for a UK overseas aid programme. UK universities and research institutes are well equipped to assist with this objective, but at present neither the mechanisms nor financial means are in place or adequate to address the long-term objective of training.

12. Short—and medium-term scientific exchanges, visits, teaching, training and project assignments are frequently successful in achieving their objectives. Longer term (1-3 years) exchanges and training and education programmes are beneficial, but too few in number and inadequately resourced.

13. In many developing countries, and particularly in the poorer ones, young scientists receiving postgraduate training in developed countries return to work in an under resourced research system, where funds are almost all spent on staff costs, and there are few funds for research. Few scientists could operate efficiently in these circumstances, so much of the funds spent on training are wasted, unless resources are

*12 July 1989]**[Continued]*

made available for the returning scientists to operate effectively. AFRC believes therefore, that more overseas aid should be applied to improving the agricultural research systems and their management.

14. With an increased emphasis and funds for training, linking UK and DC institutes, and involving reciprocal exchange of scientists, Britain's overseas aid for agricultural research would then have the right objectives in AFRC's view. The financial means for pursuing these objectives are too restricted despite the recent increases announced in overseas aid funds.

Priorities

15. Priorities in overseas scientific and technical aid related to agriculture and food production are frequently identified by funding agencies. Political and current economic pressures combined with short-term (3 or 4 years) funding, and short-term objectives, can result in the choice of inappropriate priorities or projects.

16. The identification and mutual acceptance of appropriate, relevant and attainable objectives which address only priority topics, is important. Priority assessment should incorporate scientific and technical feasibility. Preparatory and feasibility stages require funding. Absence of funding at this stage can preclude satisfactory preparation of projects. AFRC scientists could contribute more effectively than at present to overseas aid at policy and priority assessment stages.

Trends

17. The main trend discernible in the UK over the last decade has been the decline in the public funding of overseas aid. Funds for overseas aid in the UK have fallen to 0.28 per cent of GNP: the United Nations target is 0.7 per cent. This decline has led to major cuts in the support of agricultural research overseas and restructuring of organisations concerned with overseas research in the UK.

18. The recently announced increases in overseas aid are unlikely to lead to an increase in the short term in resources for institutions devoted to overseas research, but the funds could be used effectively for research purposes. AFRC, with its wealth of expertise in agriculture and the related sciences and in the planning, management and financial control of research could play a role either directly, or indirectly, linked to the research organisations working with overseas countries, especially to replace or supplement skills and experience they lack eg in ruminant research.

19. Coincident with the decline in public funding for agricultural R&D in the UK there has been a large increase in aid funds through national and international non-Government agencies. These agencies disburse funds for direct aid, but little for agricultural and food research and development, which has considerable potential for long term benefit.

The AFRC, which is already working with some of the agencies, believes that there would be mutual advantage in developing further joint approaches to research and development with funding and aid agencies, to the ultimate long term benefit of overseas recipients.

20. The trend to staff institutions and organisations in DCs with national staff has continued and been reinforced. This has produced an increased requirement for training in the UK, and for UK institutions to provide "backup services" (eg access to specialised equipment) and access to specific expertise within larger organisations (eg AFRC).

21. The long term policy of withdrawal from employment of permanent British staff in agricultural research overseas has led to an acute shortage of scientists with developing country experience. The pool of UK ex-colonial expertise, scientific, technical and managerial with experience of work overseas has been, and is diminishing rapidly. Young scientists may be highly motivated to undertake work overseas but are apprehensive of the adverse effect in the development of their career, and the disruption of personal and family life. A career structure or financial inducement is needed to encourage the involvement of able young British scientists in agricultural research overseas: AFRC could help in their training and provide a "home" base for them for scientific support and refresher training.

Adaptation to needs of recipient country

22. It is a widely held view within AFRC that the most effective aid to DCs is the training of research workers. Post-graduate and post-doctoral training, followed by continuing contact and later re-training should produce scientists, who, if reasonably equipped, will be able to adapt research findings to indigenous requirements. In addition to training of research leaders there is also a requirement for training and exchange to develop research management, as well as technical support skills for research in overseas countries. Training is a long-term investment, and trained scientists are better able both to adapt programmes to the needs of the country, and to see the results through to development and extension to the ultimate good of the farmer.

23. The difficult conditions under which research workers in developing countries operate, particularly the poorer ones, are insufficiently appreciated. Lack of resources, lack of communication and essential services inhibit research and prevent successful adaptation of research to local extension needs. Feedback

12 July 1989]

[Continued

to overseas donors is poor, but maintaining regular and frequent contact will assist in overcoming this. Flexibility in funding is required to adapt programmes to local exigencies. AFRC institutes (eg the Institute for Animal Health) are able to respond rapidly to specific needs overseas.

24. Programmes which are based on substantive aid funding are sometimes inflexible, which emphasises the requirement for project assessment and feedback. Long-term sustained commitment, plus working more directly with the recipients are seen as beneficial to the match between donor expertise and recipient requirements.

Merits of Bi-Lateral and Multi-Lateral Funding

25. Bilateral aid is more specifically targetted and short term than multilateral, so can be applied more directly to the donor's purposes. Multilateral aid goes into a common pool where the donor's priorities are subsumed in those of the group of donors, but where it might be more difficult to ensure scientific accountability.

26. Bilateral aid depends on an adequate local infrastructure to work effectively, but in agricultural research in DCs this is not always available. Bilateral aid for research, especially in the poorer countries, could be more effectively employed to restore local agricultural research services and strengthen their management, as well as in specific research projects.

27. The Consultative Group of International Agriculture Research (CGIAR) institutes demonstrate how effective multilateral aid can be. Funding of this system is no longer increasing at its former rate, so programmes have had to be reviewed and work stopped. Where longer term strategic work has ceased, AFRC could undertake this work with directed multilateral aid funds. The recently instituted move to evaluate the work of the CGIAR institutes is to be welcomed.

28. It is the AFRC view that Britain's overseas aid in agriculture, and more particularly agricultural research, has broadly the right objectives but more emphasis could be given to training, especially in research management. It is felt that more bilateral aid should go to regenerating the agricultural research services, and their links with the extension services to take advantage of better trained personnel.

29. AFRC feels that its staff, equipment and institutional resources potentially make it able to support overseas aid activities in agricultural research and development to a much larger extent than it does at present, provided funds could be made available. It can provide expertise in most of the disciplines in the agricultural sciences, and in its institutes can offer training in research and its management, modern facilities, and can undertake a wide range of research.

30. AFRC is in the forefront of genetic engineering and biotechnology. Few developing countries are equipped to embark on genetic engineering or biotechnological research, but there is considerable potential for the application of the results of biotechnology in developing countries. Some advances are ready for application using these powerful new techniques, eg *in vitro* fertilisation and implantation to increase the rate of reproduction of favoured breeds of cattle, such as the Mpwapwa breed in Tanzania; the isolation and transfer of useful genes into new crops eg insecticidally toxic genes into cotton; genetically engineered vaccines for cattle disease, some work on which is already being funded. Training in the use of the techniques of modern biological sciences is a good basis for subsequent development and application in the agriculture of the DCs.

31. The number and scale of the problems to be tackled and the meagre resources available for R&D, for extension and application of research results make it difficult to argue for increased selectivity, and concentration of resources. This however is necessary to make effective use of resources and to maintain successful programmes in DCs.

The adoption of long term objectives, exploiting existing systems (eg CGIAR) and simultaneously developing new approaches (eg like the Australian partnership scheme) will lead to more effective use of the limited resources available. The AFRC following recent changes, and with internationally resourced centres of excellence in biological science is well placed to contribute to the UK effort in relation to overseas aid especially by supporting research with the ODA.

18 April 1989

Letter from Professor J Matthews, Director of the AFRC Institute of Engineering Research

In response to your letter of 26 January I have pleasure in sending you some comments on the United Kingdom's scientific and technical aid to developing countries. I welcome this opportunity to submit written evidence on this important subject. My remarks are based on my own experiences and those of my colleagues in the Overseas Division of this Institute which, has for over 30 years, been mainly funded by the ODA to provide professional advice and technical assistance on the agricultural engineering component of the aid programme. The Head of this Division serves as Agricultural Engineering Adviser to the ODA.

I will refer to the specific points you list in your letter.

12 July 1989]

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1. AID OBJECTIVES

In the Natural Resources Sector the principal wider objective is, as we understand it, to promote sustainable development and increased food production with greater access to that food for resource poor groups in particular. The more specific objective is to raise small farmer's net income through more effective use of available resources with due regard to environmental, social and political aspects. We believe these objectives to be right. Success in meeting these objectives however, particularly in the priority areas of Sub-Saharan Africa and South Asia, does not appear to have been great. Although in some countries in Africa notable food production increases have been achieved, overall *per capita* food production in Africa as a whole has declined by 20 per cent since 1960. Population growth rates of 3-4 per cent and the apparently worsening cycle of natural disasters continue to be huge millstones to progress.

We understand the political need to spread UK scientific and technical aid to over 120 countries but perhaps more concentration of effort both geographically as well as on subject areas in which the UK has significant comparative advantage would be beneficial. The latest ODA Renewable Natural Resources Research Strategy is a good example of how the priorities can best be defined. Whether this strategy can be effectively implemented remains to be seen.

2. PRIORITY IDENTIFICATION AND PROJECT EXECUTION AND EVALUATION

We have noted a tendency for the divisions between disciplines and areas of activity in the ODA to become more pronounced. For example, the criteria for acceptable projects using natural resources research funds are that knowledge be increased. Institutional strengthening or extension activities appear to be considered as secondary benefits in this case. Multi-faceted projects involving research, development and extension are thus more difficult to implement. This is often unfortunate as more often than not the 20:80 ratio rule applies in that 20 per cent of the effort may be required to develop technology but 80 per cent is required to disseminate and apply it effectively.

No funds are specifically allocated for the application of research. Much of the Overseas Division's work at this Institute is development of technology at all levels and unless this work is country specific and therefore eligible for Geographical Department funding it is not easy to finance on a regional or wider basis.

There is in our view scope for greater interaction between disciplines and departments in the ODA. For example, in the application of engineering to agricultural and rural development the following departments may be involved:

Natural Resources and Environment Department

(agricultural engineering).

Engineering Division

(civil engineering, irrigation engineering, roads and transport, etc.).

Economics and Social Department

(the engineering aspects of the work of the Intermediate Technology Development Group).

The ODNRI

(post harvest engineering).

In research and development activities priority identification and project execution and evaluation have improved considerably in recent years. In particular for those development projects aimed at increasing the net income of small farmers. Some projects are now identified by an intimate knowledge of the small farmer situation and are executed largely in the recipient country with some professional collaboration from UK based staff and are evaluated through measuring the adoption of improved technology or practices.

The main problem is with ODA funded research and development programmes which are not location specific. These programmes are perhaps the most important in that they potentially benefit larger numbers of people but are not so easy to identify and implement. More methodological research appears to be needed in to how to measure potential benefits and to ensure that such projects do not become removed from reality.

3. TRENDS IN UK POLICY

Privatisation

Responsibility for the management as well as the conduct of ODA funded aid is increasingly being transferred to outside agencies; both commercial consultants and public sector bodies (such as ODNRI). Devolving management responsibility is a positive trend where the implementing agency can effectively manage large programmes. However, it is important that the agencies concerned adopt policies which are harmonious with those of the UK aid programmes. This is unlikely to be the case with commercial consultants who usually do not have any reason to weight highly broad objectives.

*12 July 1989]**[Continued**Quantified Monitoring*

The ODA is introducing much more quantified monitoring and evaluation into its projects and programmes. This is a positive trend so long as the quantified indicators of achievement are well thought out and that those objectives which are difficult to quantify are not just ignored.

Rural Poor Bias

There is also a trend towards encouraging more research and development aid projects to have explicit objectives relating to the rural poor in low income countries. This is a positive trend but unfortunately objectives may not be met because the performance of researchers (in the UK and elsewhere) is not measured in the same way. For career development purposes researchers have to produce academic papers and are encouraged to develop an expertise in one often rather narrow field and these pressures can lead to aid projects being conducted in a way which does not maximise the benefit to the target groups. Research planners in developing countries also need assistance in ensuring that more emphasis is placed on harmonising the goals of researchers with the needs of the end user (small farmers).

4. HOW WELL AID IS ADAPTED TO THE NEEDS OF RECIPIENT COUNTRIES

In general it seems to be easier to adapt aid projects to the needs of developing country institutions than to developing country end users (small farmers). One of the major concerns must be the weakness of local infrastructure and institutions in these countries without which even the most appropriate science and technology will be difficult to apply. Perhaps greater support to the strengthening of the planning and organisation management science and technology in recipient countries should be provided. Perhaps greater attention needs to be given to determining the optimum rate of development particularly in the allocation of resources for longer term research. In many cases the immediate urgent needs can best be met by the adaptation and application of known technologies which can be quickly disseminated and applied. At the same time it is important to develop local research development extension institutions and their activity programmes with a view to the development of technology for the longer term. Unfortunately success can often only be achieved by circumventing local bureaucracy.

There appears to be some evidence that those projects where greater importance has been attached to long term commitment have achieved better results for the end user. In the Natural Resources Sector examples exist in the Yemen Arab Republic, Mexico, Nepal and Bolivia where ODA supported activities have been ongoing for a decade or more.

In the effective implementation of aid activities in science and technology, as in so many other aspects of life, the importance of personal relationships cannot be over stressed. The need to establish good working relationships between aid administrators in the UK and officials at all levels in the receiving countries deserves greater time and effort. Increased support for longer term linkage arrangements between UK and developing country institutions with common interests should be worthwhile.

5. Bilateral funding of scientific and technical aid is likely to be most effective for those recipient countries with which we have long standing relationships and in which the infrastructures and institutions are founded on British practice (eg commonwealth countries).

UK contributions to multi-lateral funding for the CGIAR centres is in our view very effective. We do see significant potential for an increase in professional and technical support in some specialist subject areas for some centres which could benefit from stronger support. A good example is that of our collaboration with ILCA (International Livestock Centre for Africa) and ICRISAT (International Centre for Research in the Semi-Arid Tropics) where each centre has funds for some agricultural engineering activity but does not wish to set up a full time presence with its associated high costs and management requirements but prefers to buy in the specialist expertise through specific research and development projects managed by the Overseas Division of AFRC Engineering. This has been particularly successful in draught animal power research.

Multi-lateral funding in specialist areas such as agricultural engineering should in theory be highly effective for activities that have universal application in developing countries such as farm power and mechanisation studies (human, animal or mechanically powered). Unfortunately the FAO which is the principle UN agency in the Natural Resources Sector is very weak in this respect. Greater efforts to encourage organisations like FAO to strengthen their specialist areas such as agricultural engineering would be worthwhile. It would also be beneficial to ensure that more good quality British professionals hold senior posts in these organisations. In the long term this will require greater support for the UN Associate Professional Officer Schemes which although expensive in terms of training can well be justified in terms of longer term influence within the organisation. Most of our European partners are well ahead of us in this respect.

John Matthews
Director
13 March 1989

12 July 1989]

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Examination of witnesses

Professor W D P STEWART, FRS, Secretary, Professor J P HEARN, Deputy Secretary, Professor J MATTHEWS, Director of Institute of Engineering Research, Professor J BOURNE, Director of Institute for Animal Health, Agricultural and Food Research Council, called in and examined.

Lord Shackleton] Lord Caldecote, thanks to the rail strike, cannot be here today. He sends his apologies. We have therefore asked Lord Butterworth, whom many of you will know because he chaired a recent inquiry, to take the Chair.

Chairman

743. Professor Stewart, you and I know one another well. Perhaps you would like to introduce your team to us?

(Professor Stewart) First, my Lord Chairman, thank you for inviting us to come to give evidence on what is a very important topic. Professor John Matthews is the Director of our Institute of Engineering Research.

744. The famous Silsoe, of course?

(Professor Stewart) Indeed, yes. Professor John Hearn is the Deputy Secretary of AFRC and a zoologist by training. Professor John Bourne is Director of our Institute for Animal Health. He is a vet. I am a botanist by training and Secretary of the AFRC.

745. We have of course received your written evidence, which we have read with great interest. Is there anything that you would like to say by way of introduction before we get to the questions?

(Professor Stewart) Thank you, my Lord Chairman. The international dimension, as AFRC sees it, is very important. As the Agricultural and Food Research Council we have a particular interest in less developed countries. Agricultural and food production is what the developing countries need to survive. Without sustainable agriculture there is no sustainable food. Without sustainable food there is famine and misery. At present half the world's population lives on protein-deficient diets. The United Kingdom is efficient in agriculture and in food production. I believe that we have to grasp the opportunities to make use of the technology which we have in the UK to help the developing world. Secondly, we have to maximise technology transfer both for the benefit of UK industry and for the third world. There are enormous opportunities on both these fronts. Science, including agricultural and food production, is an international business with social dimensions. The UK must be involved in this and it is timely to take stock: are we doing things optimally, are we doing things efficiently, how can we do things better than in the past and what base-line do we start from. These are my initial comments, my Lord Chairman.

746. Thank you. There has come into the hands of the Sub-Committee a paper from ODA called "A Strategy for Research on Renewable Natural Resources", which we saw only this weekend. It

is dated October 1988. Is the paper known to the AFRC?

(Professor Hearn) We have just received the paper too, my Lord Chairman, yesterday.

747. So none of us really has had time to digest it. In it the AFRC is referred to. Perhaps I may read you a sentence to refresh your mind: "Their current rationalisation has led to a concentration of their activities on issues of importance to the UK domestic industry and ODA cannot continue to expect these institutes to retain or maintain a large number of staff with overseas experience. Nevertheless, the AFRC institutes retain a valuable and powerful capacity for basic and strategic research". That implies that after the reorganisation of AFRC your prime responsibility is to the UK domestic industry and that the funds you receive are not given to you for work in developing countries. I am really thinking of what lies behind our first question: what parts of AFRC's programme are of relevance to developing countries? In view of the ODA document may I slightly amend the question and put it to you this way: is the AFRC satisfied that its relationship with ODA permits it to launch a programme of relevance to developing countries? In other words, where does your money come from for developing countries?

(Professor Stewart) My Lord Chairman, you have raised many interesting issues. First there is the question about AFRC's rationalisations. The rationalisation of AFRC is determined by two main factors. One is the fact that science is changing rapidly and the UK must adapt to make sure it continues to be at the forefront. The second factor is the funding cuts particularly related to the policy of government for the funding of near market research. Our vision is not for these institutes to be solely associated with what is needed in the United Kingdom. We must have a European dimension and we must have an international dimension because agriculture and food go well beyond the boundaries of the United Kingdom. Agricultural and food research is an international exercise. The basic and strategic research that we do in the UK must be of benefit to UK industries, of course, but also it must have a European and international dimension. The UK does this particularly well. We must try to exploit it nationally and internationally.

748. Does that mean that your main line of funding is available for the kind of research that the ODA refer to in their document?

(Professor Stewart) There are three main sources as far as the AFRC is concerned. First there is science base funding for basic and strategic research, which is holding up well. We are grateful to the Department of Education and Science for sustaining that budget for us. It is on the more applied end that we have problems—on two fronts. First we have problems

12 July 1989]

Professor W D P STEWART, FRS, Professor J P HEARN,
Professor J MATTHEWS and Professor J BOURNE

[Continued]

[Chairman *Contd*]

with the funds currently coming from the Ministry of Agriculture; these have been reduced. The other funds we get for commissioned work come from agencies such as ODA. We certainly do not have within our own budget, under our own control, sufficient funds to allow us to do the sorts of things that I suspect ODA would like us to do.

749. There was an implication in what you said that if the biological research you are undertaking has an international dimension and could be applied to solve many of the problems in developing countries that you might expect the furtherance of that science to be funded from the science budget, or would you expect it to be specially funded by the ODA?

(*Professor Stewart*) That is an interesting point. I will turn it over to Professor Hearn in a moment. In the AFRC we have discussed whether it might be more useful for the Department of Education and Science—because education and science are very closely linked—to have a more international dimension than perhaps it has at present. If we had that available to us we would have more of a continuum. I believe that as we move into the next century education and science will be tightly coupled. That does not mean to say we do not benefit from and appreciate the funding of commissions that we get from the ODA. I am sure that the ODA will have an important role to play in the future. I personally would welcome some additional funding for the Department of Education and Science to play more of an international role.

750. You would welcome it, but it is not there at present?

(*Professor Stewart*) It is not there at present.

(*Professor Hearn*) Perhaps I may add to that, my Lord Chairman. All our major institutes have links with the Overseas Development Administration. Centrally we meet on a regular schedule with officials of ODA. We have not been party to development of their Strategy for Renewable Natural Resources Research, but we have meetings set up to look at ways in which we can work together. Therefore, we look forward to a real partnership with ODA. The current position, as the Secretary has said, is that in funding of overseas activities in less developed countries, we would look to ODA for partnership.

751. Does that apply to engineering?

(*Professor Matthews*) My Lord Chairman, we have what I think is a very useful pattern. One division of my institute is core-funded by ODA. It is able to receive its underpinning expertise from the other more research-based divisions of the institute. This enables the innovations, the new technologies, which we develop primarily with a UK or European motivation to be seen fairly quickly for their worth in the less-developed countries. There are two components, the ODA component and the Department of Education and Science component. I would be wrong, I think, if I did not add at this stage the possibilities of European Community involvement because we also give a great deal of effort to trying to

bring European Community aid funds into overseas work and, indeed, with some success.

752. In the report you are specially referred to as one of the institutes which receive special funding?

(*Professor Matthews*) We have a team of some ten engineers, plus support staff.

753. Having referred to you, it goes on in a rather indefinite way to say, "Other possibilities might include other AFRC institutions and NERC". However, you are particularly referred to. You say that you have meetings with the ODA. There is now to be a series of structured meetings in furtherance of the ODA report. Again I read, "a regular structured system of meetings to take place at least once, and maybe twice, a year be established between NERC, ODNRI and each geographical division". It surprised me that you were not referred to in those structured meetings.

(*Professor Hearn*) The meetings to which I was referring were invitations that we have given to ODA to attend our management board.

754. Oh, they are your initiative?

(*Professor Hearn*) Indeed. We have, likewise, invited ODA to our institutes to explore ways in which we can help implement the strategy plan that they have developed.

Baroness Lockwood

755. Would Professor Hearn think it advisable and helpful for AFRC to be involved in the strategy discussions of ODA?

(*Professor Hearn*) I think the earlier we have a dialogue the better. We feel that we have a basic and strategic science base of great strength in the AFRC which has not been fully exploited internationally, particularly for the less developed countries. There are several reasons for that that we might go into later. One aspect that could be furthered is earlier dialogue with ODA.

Chairman

756. This is crucial, is it not? Would you care to expand a little further on this?

(*Professor Hearn*) When we have properly digested the ODA strategic plan, I think we would have some comments and critique as to ways in which we can help, ways in which we feel that perhaps the basic and strategic science has not been sufficiently emphasised and ways in which we feel that less developed country scientists might profit in training and joint projects from the AFRC science base both in institutes and in universities. Thus we have many positive suggestions to make. We would hope that this could be quickly moved from sitting round tables discussing strategy with officials to working with individuals and implementing scientific programmes.

757. What is the extent of the relationship at present? Does it mean that ODA come to you and fund a specific research project? What you are saying to us at the moment is that your science is so broadly

12 July 1989]

Professor W D P STEWART, FRS, Professor J P HEARN,
Professor J MATTHEWS and Professor J BOURNE

[Continued

[Chairman *Contd*]

based and so important—we understand this—that you ought to have a bigger role and a bigger relationship?

(*Professor Hearn*) Yes.

758. How does it come about at present?

(*Professor Hearn*) At present we receive from ODA in financial terms about £1.3 million a year. This is for about 33 projects so it is really rather small, piece by piece, activity.

759. The average value of a project would be how much?

(*Professor Hearn*) It varies from £10,000 or £20,000 up to a programme level of £400,000, but overall they are small *ad hoc* projects.

760. They come to you and commission a particular project?

(*Professor Hearn*) Yes.

761. Let us say that you had some development in biotechnology that you thought would be of enormous significance to the development of certain crops in Africa, would you take the initiative and send people to Africa?

(*Professor Hearn*) Perhaps we can give a specific example in Animal Health research.

(*Professor Bourne*) I can give some examples. As was indicated, my interest is animal health. Within my institute is Pirbright, which works on exotic viruses. The strict remit of the laboratory is to ensure that these exotic viruses do not come into the United Kingdom. However, many of those on which we work know no international boundaries and are more relevant to the third world than they are to Europe—foot and mouth disease, rinderpest, African swine fever and a whole host of others. The relationship with ODA in the past has been a very close one. It is true to say, I think, that it is now becoming less close for two reasons. One is that the fundamental resource for the science within the institute is being removed as a result of financial stringencies; we are also seeing a change in attitude of ODA in funding science programmes. We still have a close relationship with ODA. Their scientific advisers know the work that we are doing and will ask us to respond to a particular need in developing the science programme. On the other hand we also apply periodically to ODA to finance fundamental programmes in the institute which are of relevance to the third world. I think that has not worked very successfully recently because of the pressures on ODA funds and because of a change in ODA policy. We have never been quite sure what the strategy emerging from ODA is. I certainly welcome publication of the report that you mentioned, my Lord Chairman, which I have not yet seen. You indicated that in having to address ourselves to the UK agricultural scene we are limited in how well we can address the international scene, and that certainly is very true. In the past, however, we have addressed the international scene through the process of altruism and a large number of staff with field experience. Those staff have gone. We have very few staff with field experience now, yet this is precisely what ODA

desperately needs from us. ODA are increasingly making it difficult for us to attract funding from them to support their programme.

Lord Walston

762. Are the difficulties that you are running into in any way connected with a division between basic and near market research? It would seem to me that a lot of your basic research when it gets over into a third world country of necessity comes very close to being applied research and therefore near market?

(*Professor Bourne*) I do not think we are getting confused by that, but probably ODA may be getting themselves a little confused by it. I can give a good example. One high science project in the institute at present is in developing Capripox vectors for vaccines in the third world. This vaccine would protect against sheep and goat pox, scourges of the animal population in Africa. It would also carry genes to protect against rinderpest, foot and mouth and so on. ODA have funded this for three years. It is a long term project. It is one that we put to ODA. We have submitted a proposal to ODA for an extension of this work. They recognise that it is near market and suggest we find industrial partners to pick this up and carry it forward, with ODA withdrawing funds. To find an industrial partner to develop a third world vaccine is like finding snowballs on the equator. I think therefore that they are confusing the issue of near market. Here we have a high science project that has been highly rated by scientific advisers and is of high public good and social priority but it has been rejected by ODA. These are the problems emerging in funding. They are clear and definite ones.

Chairman

763. Perhaps I may come back to the main theme. A crucial factor in the ODA document is ODNRI. According to this document ODNRI gets half the ODA money available in this area. It therefore raises the question: what is your relationship with ODNRI and is that satisfactory?

(*Professor Stewart*) Perhaps I may first put financial matters into perspective. Professor Hearn said that we get approximately £1 million per annum from the ODA. We have a total budget of £130 million so that is not a high percentage of our budget. Secondly, I will ask Professor Hearn to address the specific question in relation to ODNRI.

(*Professor Hearn*) My Lord Chairman, as you are well aware, ODNRI have themselves been undergoing a great deal of change recently. They are focusing in Chatham all their different laboratories. We have had good relations over the years with the individual laboratories. We look forward to maintaining those links with Chatham.

764. Are they likely to become a sponsoring agent?

(*Professor Hearn*) Yes, they are. There are two points that I should like to make. First, I hope that ODNRI will not become isolated in Chatham, that is, operate abroad, come back to Chatham and not

12 July 1989]

Professor W D P STEWART, FRS, Professor J P HEARN,
Professor J MATTHEWS and Professor J BOURNE

[Continued

[Chairman *Contd*]

be part of the full scientific community. They are not really linked closely to a university base there. We would certainly hope to link them as far as possible with our AFRC institute and university base. Secondly, the overall numbers of staff in ODNRI have gone down—I think from about 500 to 300. This covers the whole of natural resource development. We feel that such a small staff, to cover such a very wide area, should make use of other parts of the British science base that can be brought into play. We certainly respect the great competence of those scientists in ODNRI working in the field on specific projects, but we feel we can back them up much better than perhaps we have done in the past. It seems to us rather obvious that this will be necessary with the reduction in staffing at Chatham.

Lord Taylor of Blackburn

765. You are saying then that you feel you should be supportive or back-up service to them?

(*Professor Hearn*) We should certainly be providing new initiatives in basic and strategic science. We should be able to provide a training resource base. There is the idea—it is one that other international agencies are developing—that we might be seen as an executing agent for specific areas of our expertise. Take animal health or engineering, for example. To some extent in engineering we already are. In our collaboration with ODA as a whole we would rather not be developing 38 tiny projects that take a great deal of time and bureaucracy to put up each year. We would prefer to agree a deal with ODNRI and ODA to be an executing agent for an area of science and to develop that area.

766. Who should be leading then, you or ODNRI?

(*Professor Hearn*) I think it will depend upon the programme as to whether it is ODNRI or AFRC leading. That would be subject to negotiation. I would not want to be prescriptive at this stage.

Chairman

767. Perhaps I may follow Lord Taylor and try to tempt Professor Stewart a little in this. I think you said a moment ago, Professor Stewart, that you have a total budget of £130 million and you get only £1 million from the ODA. You have also said that you represent an important part—of course we accept this wholly—of the science base. Is the ODA therefore exploiting the AFRC sufficiently?

(*Professor Stewart*) There are several things. First, perhaps I may return to an earlier point that was made about the relationships between ODA and AFRC. It is fair to say that ODA have been in the middle of their own restructuring. We knew that the ODA were developing a plan. While we have not spoken to them as much as we might have done, that was because we were told that they were developing their plan and once they had developed their plan they would try to take various issues forward with AFRC. Therefore, consultations do go on. The last year perhaps has been a difficult period as ODA developed their new structural plan. The second

question was whether we are being exploited by ODA. The basic and strategic research base that the UK has in AFRC has enormous opportunities for the developing world. The question is, how does one get the funding into that to make sure we use it as effectively as possible. I would simply say that £1 million from ODA does not provide that.

768. Then I am tempted to ask, is ODA getting its basic scientific advice from some other source?

(*Professor Stewart*) I think a lot of the questions that you are asking, my Lord Chairman, have to be asked of the ODA. My view is that ODA does not have the science base that we can provide. Without the science base it is much more difficult to take a longer term strategic view, which one needs. As a result, because of funding difficulties, it is much easier for an organisation under stress to commission short term projects of small duration to give the flexibility that they perceive as being necessary during difficult times for them.

Lord Perry of Walton

769. If I may expand on this, it is my experience in every walk of life that it is relatively easy to get money for projects that are specified, especially in the international sphere. To get money to support the base on which the projects can be built is very much more difficult. Is that what is missing from the plan, which ought to be a joint one between ODA and the AFRC? If that were put in somehow from the total government vote, would it make a big difference?

(*Professor Stewart*) If the basic science base was supplemented it would make a tremendous difference. In the life sciences, there are ideas and new initiatives bubbling up everywhere. We do not have the opportunity to grasp these because the science base is insufficient.

770. Perhaps I did not phrase what I wanted to say clearly enough. In respect to overseas aid the money that is available, it seems to me, is for projects and there is no ODA money for the basic work on which projects can be based?

(*Professor Bourne*) Absolutely.

771. If we are going to have increased ODA money it should be more in that direction than in the project direction; it should be pushed, am I right?

(*Professor Bourne*) To simplify this I think we need financing in two directions. One is to finance the fundamental programme at home within the institutions; the other is to ensure we get finance for projects overseas. A lot of money at the moment is being given by ODA to overseas projects, but in my own institute I have staff spending three man-years abroad working on third world projects, but that is not paid for at full economic cost. It is further undermining the fundamental science base in the UK. We need funds for work in UK at a fundamental level and we need funds for working in the developing countries at the technology transfer and applied level.

772. I am sorry to flog this, but it does not really

12 July 1989]

Professor W D P STEWART, FRS, Professor J P HEARN,
Professor J MATTHEWS and Professor J BOURNE

[Continued

[Lord Perry of Walton *Contd*]

matter to you, I suppose (it certainly would not have mattered to me) whether the money comes from one source or another. It is money that we want to spend?

(*Professor Bourne*) Sure.

773. But it matters in terms of what the country is doing and how much of the fund is earmarked for overseas development? Am I right in thinking that money should be available in the ODA budget for general support of research before the projects begin?

(*Professor Matthews*) I am sure that there are many instances where we develop the strategic understanding of the process and for another 10 per cent of expenditure we could develop it to have a much broader overseas application. For example, if we have hit upon a new method in our studies of crop mechanics of how we harvest wheat, perhaps 10 per cent additional input at that stage would enable the same crop mechanics to study rice. This is one point where efficient strategic funding would count.

(*Professor Stewart*) Perhaps I may follow up on that question. I am slightly sensitive that we may be getting into the position in which we are suggesting there should be several sources of funding the basic research base of the country. I believe that is a function primarily of the Department of Education and Science. If the Department of Education and Science was adequately funded we would be able to take on board some of the issues on the basic side that we are not able to at present because of overall funding shortages.

Lord Sherfield

774. Perhaps I may change the subject and ask what are the main factors which have prevented agricultural research making a greater impact on the food problems of Africa?

(*Professor Matthews*) The all embracing one I think I would see is the lack of a good research infrastructure in the receiving countries. The difficulty of making the research applicable, obtaining the technology transfer and obtaining the continuity in application of the research as well as its proper pursuance to the end point is greatly increased by working with relatively few, rather poorly trained people when one comes to the aid bridge. I think that certainly is the most dominant thing. It is an area where I believe the international aid agencies as well as the UK should give higher priority. Other than this there are certain technical matters to which I will come back later. I would not want to water down the importance of the R&D infrastructure in the aid receiving countries by going on to other things. I think that is dominant.

775. You make the point in the paper that a number of local people who are trained over here or in other countries for that matter go back and are unable to develop their knowledge and expertise due to the fact that the facilities are poor. Is that right?

(*Professor Matthews*) Yes, I think they are short of facilities, the modern research equipment that one uses these days and proper technician support. We do rather better I think in training graduates and

sending them back than we do in giving them their support staff and support infrastructure—and, indeed, in providing an adequate peer community to deal with. At some stage we need to discuss the twinning of UK centres of expertise and excellence with this growing infrastructure overseas. I think this is where the answer will be seen to lie.

Chairman

776. But why have we had a green revolution in India and not a green revolution in Africa? It is not a contrast with developed countries; it is as between, let us say, India and Africa. Why should there be such a great distinction? Why have we apparently been less successful in Africa than in India?

(*Professor Stewart*) In India there has been a reasonable group of national agricultural research centres that have been able to compete. In Africa the national agricultural research institutes have not been internationally or even nationally successful. Without having that base within the countries it is more difficult.

Lord Shackleton

777. How far is this worse now because of the declining educational standards in Africa? How far do you visualise this as a failure in basic education?

(*Professor Stewart*) I will let Professor Hearn come in, but my own philosophy in life is that everything depends on education. Unless you have a good education you are not going to go very far in the long run.

(*Professor Hearn*) Education standards are undoubtedly under pressure in much of Africa, mainly because of the huge rates of increase in the human population. That is why agricultural production has not managed to keep up. We have to look to long term programmes in training and education. I have grown up in Africa and worked with the WHO for the last 15 years in training and education in Africa. We find that two of the major challenges are, firstly, if we plan in too short a term, that is, less than 10 years. Secondly, if we take scientists out of the country, train them in inadequate or irrelevant areas of science and then send them back without proper support. They are recruited immediately to sit behind desks in a Ministry. One can lose 30 to 40 per cent of trainees in that way.

Chairman

778. I once paid a visit to the agricultural university of the Punjab. That seemed to me to be an excellent institution. Not only was there basic research going on but there was an enormous extension service getting the latest research developments right down to the farms. Is what you are saying that one of the great needs in Africa is to train more people in order to get that kind of operation going? It is not merely a matter of research or of basic science; it is also a matter of getting the expertise down to the individual farms?

(*Professor Stewart*) That is certainly an important

12 July 1989]

Professor W D P STEWART, FRS, Professor J P HEARN,
Professor J MATTHEWS and Professor J BOURNE

[Continued

[Chairman *Contd*]

point. One of the best ways to get this sort of technology transfer is for scientists within a particular institute in this country to be talking to scientists in a good institute in another country. In relation to India, for example, that works particularly well. When you try to do that with Africa you do not have the local partner in Africa so you do not have scientists talking on an equal basis. If one had that it would then be for the local scientists to transfer that technology on to the technicians, the farmers, the labourers and so on. That is what is lacking in Africa at present.

779. I am smiling, Professor Stewart, because I remember a previous conversation we had when you said to me that the best agency for technology transfer is the seed. Is this so?

(*Professor Stewart*) I do not remember what I said and when I said it, and I do not remember in what context I may have done, my Lord Chairman—I am sorry!

Lord Walston

780. It seems to me that we are talking a little loosely about Africa. It is a big area and there are enormous differences in it. There are certain countries in Africa south of the Sahara with a relatively good education programme and relatively articulate, educated, literate farmers; and there are many that are not. In order to support the thesis that has been put forward—that it is lack of education—one would expect to see that any work done in those well educated countries is far more effective than in those that are not. Is that in fact the case? Do you consider that it is in any way part of your responsibilities to do research into the dissemination of new techniques, or would you say that that was outside your remit?

(*Professor Bourne*) I think that is very much part and parcel of the work we are doing. Again I use the example of the work that we are doing in relation to virus disease control, particularly in African countries. We are tackling these in a number of ways. We are doing fundamental work in UK. We are addressing field epidemiological diseases in a number of African countries. We are developing “high tech” answers to their problems in UK in the way of developing diagnostic kits, for example. We are developing this in such a way that it can be used effectively in “low tech” areas. I think it is important in the education of African people that one does not give them “high tech” diagnostics to work with because one knows jolly well that they will not work; it has to be “low tech”. Coupled with that we have to have a substantive training programme. We have this within the AFRC at present. We attract dozens of overseas graduates and technicians into UK, but it is done on a shoestring. I would support the comments made previously that in some countries—for example Zimbabwe—we see a structure, but in many countries we do not. I do not think it is our job to take our message beyond the scientists in the African countries. I think the extension services are

not within our remit. Our remit is to direct our technology to the scientists, who will then relate to those extension services.

781. But it is within your remit to adapt your high tech to middle tech or low tech and therefore you need some knowledge of the relative position of Zimbabwe, Zaire and so on?

(*Professor Bourne*) Indeed.

782. How can you acquire that?

(*Professor Bourne*) Only by having members of staff working in African countries. In 1988, for example, 115 visits to third world countries were made by my staff.

Chairman

783. They were mostly paid for not out of the science fund?

(*Professor Bourne*) That is a jolly good question. They were subsidised by moneys out of the science vote. The full economic cost of these trips was not met by the funding bodies, including the ODA.

Lord Taylor of Blackburn

784. We have just returned from Nigeria and Gambia. We found there a lack of basic educational materials—books, periodicals—with people crying out to get up to date with what is going on in the world outside. Do you think we should be encouraging more money to be spent on this rather than training and retraining?

(*Professor Hearn*) I think we should be looking ahead to how we could do it better. Many universities throughout Africa have insufficient journals and books, although a lot of money is spent. Now the on line computer based networks that have been developed in this country and in the United States are more available. These networks, either through direct link or through circulation of discs, provide databases of recent research and recent exploitation of research in agricultural, environmental development fields. I suspect that if we were to look ten years ahead we should be considering, for example, disc supplies, which can then be selective. Scientists who want particular journals and information can then select what they want and ask for it in more detail, rather than consulting an insufficient and often delayed set of journals.

Lord Perry of Walton

785. Do you detect a difference in the basic level of education and ability to assimilate research experience between those of your trainees who come from Africa and those who come from Asian countries? I used to see that 30 years ago, but I do not know whether it is still true?

(*Professor Stewart*) It is very interesting point. I believe that one of the reasons that the Indians do rather well in agriculture at present is that they are pretty good at the new technologies of molecular

12 July 1989]

Professor W D P STEWART, FRs, Professor J P HEARN,
Professor J MATTHEWS and Professor J BOURNE

[Continued]

[Lord Perry of Walton *Contd*]

biology and genetics. They seem to have green fingers where that is concerned. That makes a difference. Not all countries have that specialist ability. The Indians do it particularly well.

(*Professor Matthews*) Perhaps I may add to that, my Lord Chairman. I see the same thing not only in India but in south-east Asia generally—the brightness of the individuals, their ability to grasp theoretical concepts. They are still rather weak at grasping certain practical things because they have not had the practical training. I would suggest that there is a difference. In our case we have the experience of working using high tech instrumentation and high tech methodologies to study the application of the draught animal, remembering that the number of horse power from animals in the world equals the number of horse power from tractors and in many areas, of course, a lot higher. It is my experience when we work in India, in Ethiopia and in Morocco that the Asian experimentation goes much more readily, it is more easily organised and the understanding is more quickly grasped.

Lord Taylor of Blackburn

786. What should be the priorities for agricultural research in support of developing countries in the next 10 years?

(*Professor Stewart*) I believe that unless we have a strong basic science base which is flexible and adaptable we will not succeed in the longer term. That basic science base must arise initially in countries such as the UK and the applied findings from that must be developed on a worldwide basis as people increase their own basic standards. Professor Hearn will talk about training and concentrating expertise and so on.

(*Professor Hearn*) The role of AFRC here is to generate the new knowledge that can then be applied to developing countries needs. Examples are in areas of increasing productivity, improvements in husbandry, reduction of losses through pests, the latter being a major cause of loss of efficiency, and protection of the environment. We see several steps in this. Firstly in training, our current level of activity does not use our potential to the full. We have at present from less developed countries 258 students in our laboratories, 177 at postgraduate level and 81 at post doctoral level. In the past 12 months we have had 100 short term visitors, from three days to three months; 32 longer term visits, three to nine months, and 43 visits of one year or over. That does not fully use our potential although it is a fairly impressive total. We think we should be building bilaterally much more between AFRC institutes and national biological and agricultural research centres in training and exchange through twinning and training programmes. We feel we could do more to develop and sustain the scientific infrastructure and management of science in less developed countries. The objective is not achieved just by sending back PhDs. We think we should be harnessing the research expertise and capability of developed countries more to R&D in less developed countries. That requires a strategic look at needs and long term

objectives. It goes back to an earlier question about our having become slightly inward looking over the past 20 years, a point that is noted often by those senior scientists in developing countries who have trained in Britain in the past. We need to be providing more training, but I think the training has to be much more tailored to the needs of those countries that we are attempting to assist. For example, if the PhD student comes for three years and works on a problem that is not relevant to his country, he may not settle back well when he returns. I think that we should be exploring more the possibility of such students in their first year training principally in scientific discipline and in research techniques in Britain, returning to work on a programme that is relevant to their country of origin, supervised from a British laboratory with a co-supervisor in the country of origin and then perhaps returning to university here to write up. We feel that this would be a more efficient way in which training could be kept relevant to the needs of those countries. Perhaps I may pass to my colleague Professor Bourne for individual examples in animal health.

(*Professor Bourne*) Specifically in animal health the two diseases that cause catastrophic effects on local communities are foot and mouth and rinderpest—those would be high priorities in the disease field—followed by sheep and goat pox and a number of other mainly viral diseases. In a general sense I think none of us would dissent from the view that molecular biology coupled with genetic engineering has enormous potential to offer developing countries. In developing a high tech approach it will only work if it is presented as a low tech solution. I have given an example of that. There are other examples where modern technology may be applied but one has to be very careful about applying it. That is in engineering new strains of plants or animals, particularly developing disease resistance. There is a tendency with research programmes to work to a very narrow genetic base and not use the genes that are inherent in indigenous breeds. I think therefore that molecular biology sensibly applied will have an enormous part to play in third world development. Many of the old disease problems that have been with us for years are still very serious problems. The recent rinderpest outbreak in Africa was devastating to whole communities and is a good example of that.

(*Professor Stewart*) Perhaps I could come in here, my Lord Chairman, and try to focus the question more precisely. The question was, what should the priorities be. The UK has a problem of course that it cannot do everything because it does not have enough money. We have to be part of an international scientific community. One thing we do particularly well in this country is to generate food and we have a good agricultural system. One of the most important things we have to do it seems to me in developing countries, particularly in Africa, is to introduce sustainable agricultural production with the resources that we have there. One problem we have in this country is that high agricultural production are bad words at present. Efficient production

12 July 1989]

Professor W D P STEWART, FRS, Professor J P HEARN,
Professor J MATTHEWS and Professor J BOURNE

[Continued

[Lord Taylor of Blackburn *Contd*]

is what we are asked to achieve. In places like Africa what we need and what we should be going for is increased and sustainable production. If we were able to achieve that then I believe there are additional opportunities to couple the research base that the UK can provide with the needs of UK seed companies to generate products that will be particularly effective in countries such as those of Africa. It is a coupling of the science to commercialisation and realising what the environmental limitations are in the country in which one is going to work.

Lord Walston] I was interested in and surprised at what Professor Hearn said about the doctoral student, a year over here, a year home, and a year back here to finish off his paper. I had always thought very much from the outside that the importance of having students over here, at whatever level, was to learn the basic engineering techniques so that when they go home they can evolve a new form of knapsack sprayer that is particularly suitable for high altitudes or they can adapt the genetic engineering they have learnt here to produce improved cassava or whatever it may be, in other words, that they should learn the techniques here so the avenues open up to them, whether at high, low or intermediate levels and they then operate them in their own countries.

Chairman

787. An increasing number of countries are following that kind of pattern in that the doctoral student, say, comes over here and has a year or two years here but he has a supervisor at home; he finishes his work when he returns and his PhD gets awarded in his home university. This is a great contribution—or is thought to be—towards stemming the brain drain. He is at home when he actually receives his award.

(*Professor Hearn*) I do not think we are saying different things here, my Lord Chairman. One could debate the various permutations. One needs to give sufficient time so that a student can be trained in a scientific discipline and modern techniques as well as in the more local dimension of a scientific question.

788. How would you like to construct the role of AFRC in the future, what is your relationship with ODNRI going to be and what will your relationship with ODA be in order that your particular, important input can be fed in sufficiently early to affect the order of priorities? That is what I am unclear about.

(*Professor Stewart*) It is a difficult question to answer. We are convinced that AFRC has a unique skill base in the UK and we should be exploiting that for the advantage of the world community. We are particularly good at basic and strategic research. We have a particular role to play in relation to training. We want to use that in collaboration with ODNRI and with ODA to take forward conjointly some of the emerging problems in the developing countries. To do that we have to appreciate where the ODNRI and the ODA identify particular problems. We have to sit round the table and say: how can our expertise fit into the needs that you have, and how do we then

take it forward collectively and with judgment. We cannot do any more than that.

789. Now we have all seen the document, do you think the ODA is giving sufficient attention to your basic science?

(*Professor Stewart*) I think more requires to be done in the area of basic science if it is to realise its full potential in relation to the developing countries. That does not happen at present. We need additional resources coming in, whether via ODA, DES or whoever. We cannot exploit them optimally until we have the resources.

(*Professor Bourne*) We have seen a trend, I think, for ODA to remove authority and scientific judgment from its own in-house scientific advisers and give it to economists or accountants with outside contractor's advice. I see that as creating a difficulty for us within AFRC. I do not think that the correct scientific input is being given to ODA policy. In relation to ODNRI, I am not aware that they have expertise in animal health in particular. I think it would be appropriate for AFRC in this instance to act as an agency for animal health, particularly in the viral and bacterial diseases. With the present context I think we could make a good job of it.

(*Professor Hearn*) With regard to how we do this, I hope that we could at least once a year and perhaps twice a year meet the relevant officers of ODA and ODNRI and look ahead to their objectives and operations and to ours and see where they meet. I believe we will find there are many strengths to be gained from such a partnership.

(*Professor Matthews*) My organisation of course is slightly different in that I have an encampment of ODA within my institute. It is in fact an area that is parallel to ODNRI. We deal with the agricultural engineering up to harvest and ODNRI, post harvest. The pattern we have is I think a beneficial one. My head of division spends one and a half days a week at ODA in London and has a dual role. He is also a natural resources adviser of ODA. This is good, and I think we see the benefit there. I personally am convinced that when ODNRI is stabilised it has the ability across much of its remit to gain more quantitative science and more fundamental understanding and modelling from our work carried out primarily from the point of view of UK crops and livestock.

Lord Shackleton

790. I want to turn to question 5, which in a sense also bears on what we have been discussing. The Remote Sensing Society have made a statement with ringing tones to it. I am not sure how valid it is. I wonder whether you could comment. The suggestion would seem to be that administrators and economists are so fascinated by their machinery, their analysis and so on that it goes off on its own orbit and the scientists have to run to get scientific facts into those considerations. I do not know whether this is valid or not. I would be interested if you could comment on it.

(*Professor Bourne*) I think some of the comments

12 July 1989]

Professor W D P STEWART, FRS, Professor J P HEARN,
Professor J MATTHEWS and Professor J BOURNE

[Continued]

[Lord Shackleton *Contd*]

that we have already made relate to this. We certainly believe that it is important that ODA continues to have its own in-house experts who can judge matters on a scientific basis and have the authority to initiate and to monitor research. What we conceive is that certainly ODA are looking for value for money—there is nothing wrong with that—in determining their policy. However, we detect that it is perhaps being determined not by scientists but by economists.

(*Professor Stewart*) If I may comment on that, my Lord Chairman, ODA's circumstances are changing, they are in the middle of change. The AFRC is changing, we are in the middle of change. Your Lordships should not go away with the impression that there is little co-operation and co-ordination between the two organisations. We are both going through a difficult phase at present. With our restructuring on both sides we are beginning to see a light at the end of the tunnel. I believe that once that change has taken place the ODA and the AFRC can work positively together. We intend to make sure that as far as we are concerned we will work positively together. We are looking into the possibility not only of having increased interaction in relation to meetings but of having cross-representation on some of our committees.

791. A particular point that could be made here is that your very clear-minded analyst, economist or whatever—there are so many of them in industry—exclude by the application of the logic of their analysis what I would call for want of a better word scientific serendipity. Is this a valid point? Do you feel that there are times when people who are working and have their flair, flash and scientific knowledge could do rather better than the analyses suggest? You may feel that it is not worth commenting on that, but I would be interested if you can.

(*Professor Stewart*) It is a matter that is very close to my heart because I believe that the best discoveries come by chance; one cannot tell precisely where they will come. The difference is making sure when an opportunity occurs like that that you do not let it slip, and perhaps too often in the UK in the past we have let some of these opportunities slip. That is one of the changes that the economists and others are bringing home to us. There are lots of interesting scientific matters arising that have opportunities for commercial exploitation. In the past we have let some of these slip by default. We are not doing that so often now, and I suspect that we will do it less often in the future.

(*Professor Matthews*) Perhaps I may add that I think it is important that the economists, who are generally studying social structures and the implication of the new technology, the advances on social structures in the developing countries, are working closely in hand with the scientists. This eliminates quite a lot of the risk of one-sided decisions. I am pleased to report that we have an economist within our overseas division funded by ODA to work alongside our engineers. I believe that is a benefit.

(*Professor Stewart*) My Lord Chairman, there is

nothing wrong with economic rigour. Perhaps in this country we have not had enough of it in the past.

Lord Shackleton

792. In industry I have seen business evaluation departments turn down something ruthlessly and the imaginative executive saying, "We'll give it a go". Sometimes much to the satisfaction of the business evaluation departments there is a failure. Sometimes it is a roaring success. I am wondering whether you get over-analysed at times?

(*Professor Stewart*) There is a possibility that we get over-analysed. My view on the success of an organisation is that it depends very much on the people who are in it. If you choose the right people and give them the opportunity to get on with their objectives, you usually do the best job that way.

Lord Walston

793. I have a very wide question which perhaps is unfair to you, and you will tell me if it is. It is maintained by some people, I think with considerable justification, that one reason why this country was the leading agricultural country in the 18th and 19th centuries was very largely because of its system of land ownership and because it had a fairly widespread system of local banking and the availability of capital. Undoubtedly how land is owned is of great importance. A question was asked about why India was so much more successful than Africa. It may be something to do with their system of land ownership as well as education. So far as I know no research is done into one one can loosely call the agrarian matters. Am I wrong in saying that and there is in fact research done? Would you consider it within the remit of AFRC to look at these rather basic certainly not applied questions at present? If not you, who?

(*Professor Stewart*) It is a very interesting point. If we were addressing this issue relating to the UK I would say the AFRC and the ESRC—the Economic and Social Research Council—would be getting together putting a bid into ABRC; and in fact in one particular area we are doing that this year. I believe that the association between the ESRC and AFRC has an important role to play. I do not believe that it should be restricted to national boundaries. Whether anything has been done in that area at present I could not answer, I am afraid. I am not sure whether any of my colleagues could.

(*Professor Matthews*) I suspect not. I attended a recent conference of the Royal Agricultural Society on the small Commonwealth farms, and there appeared to be little there in relation to ownership, size and the extent to which that would reflect in uptake.

794. Would you say the problem was of significance in ensuring that the results of the scientists are brought into productive use with the least possible delay or is it something one could safely ignore?

(*Professor Stewart*) No, I do not think one can ignore it at all.

795. You would like to see someone looking at it but you do not think it is you?

12 July 1989]

Professor W D P STEWART, FRS, Professor J P HEARN,
Professor J MATTHEWS and Professor J BOURNE

[Continued

[Lord Walston Contd]

(*Professor Stewart*) I do not think one can separate science and social issues. I think they are intimately entwined. That must be the case in developing countries just as in developed countries.

Lord Perry of Walton

796. In paragraph 19 of your memorandum you say, "Coincident with the decline in public funding for agricultural R&D in the UK there has been a large increase in aid funds through national and international agencies". Can you tell us what that increase is?

(*Professor Hearn*) That refers to funding through, for example, World Bank, the EC and other development agencies. I have no figures available.

797. It goes on to say, "These agencies disburse funds for direct aid, but little for agricultural and food research". I do not understand what the paragraph means.

(*Professor Hearn*) There is considerable aid for agricultural and food research, for example through World Bank and ODA to the CGIAR system of Agricultural Institutes.

Lord Walston

798. From your experience with people who have come to work in your institutes, do you find they go back and get down to where the work is being done? In other words, do they become dirty boot scientists or do they remain in their air conditioned laboratories and really not know what is going on in their countries?

(*Professor Stewart*) Often they do not go back and they do not become bench workers and they do not become field workers, but those who do become field workers and bench workers often become international experts and have a particularly important role to play in disseminating knowledge at the more practical level. I would go on and say that even those who go back and take up more administrative posts have an important role to play as far as the UK is concerned because by and large they remain pro the organisation and the country to which they came to be trained. I believe the UK has not been terribly clever in not encouraging more training of overseas students within the UK. In Germany, for example, at least a few years ago, the Germans were providing fairly large sums of money for overseas students and post doctoral fellows to come and do their training in Germany. What we did in the UK was to increase the fee they would have to pay. This discouraged people. That has been a serious problem. We ought to get back on to the tramlines of encouraging workers from developing countries in particular to come to the UK to be trained up and go back there and, when they do, to use good British equipment, seed and whatever.

Lord Perry of Walton

799. Reading between the lines under "Trends" one could say all the paragraphs are essentially negative. They are all reasons why things are getting

worse. Does paragraph 1 embody the real problem, that there is just too little overseas aid for agricultural purposes at present?

(*Professor Stewart*) That is the answer too little relative to the importance of the subject area.

Chairman

800. I think the problem is that what we have to do is to try to make the best we can of all the resources available, wherever they may come. It may be that we ought to say that there is not enough aid. At the same time we ought to try to be more efficient with the present resources?

(*Professor Hearn*) Yes, indeed.

Lord Perry of Walton

801. My question was about aid in agriculture. The same amount of aid could be split differently.

(*Professor Stewart*) As I mentioned earlier, the UK has a finite resource. How can it use it more effectively to help the developing countries, bearing in mind the need in the developing countries for agriculture and food production. I can think of few other things where the limited amount of aid we have can be used more effectively than in providing additional resource for food and agricultural production.

Lord Walston

802. Arising out of the ODA document, with the emphasis increasingly on near market research it is clear that some of the basic research here in genetic engineering and so on is of value at some stage to the producers, but it is solely the big producers of export crops who have the resources to enable them to develop from the strategic to market research. The crops that are of value to the peasant farmer for subsistence do not have that sort of a patron. Is there a gap in developing some of the genetic engineering research for some of the peasant crops as opposed to some of the export plantation plants?

(*Professor Stewart*) That is an interesting point. The larger companies are investing particularly in genetic engineering because they can see the patents down the road to make their profits 25 years hence. I believe that genetic engineering will also have a major role to play for the medium size and small farmers. The most important issue of all is to determine what the mission you want to achieve is, what country you are dealing with, what sort of population, what type of farming practices there are and identify the goals and objectives and use the totality of the resources you have to try to solve one problem at a time. As the noble Lord, Lord Walston, said earlier it is very difficult to generalise for the whole of Africa. If we get our mission sorted out and co-ordinate our resources, then I believe we have a chance, and that is what we should be trying to do.

Chairman

803. If after reflection you would like to comment further on the ODA paper "A Strategy for Research on Renewable Natural Resources" or indeed on

*12 July 1989]*Professor W D P STEWART, FRS, Professor J P HEARN,
Professor J MATTHEWS and Professor J BOURNE*[Continued]**[Chairman Contd]*

anything else on which we have touched today, we would be delighted to hear from you.

(Professor Stewart) Thank you for giving us the opportunity, my Lord Chairman. We have not read the document so we have to take it on board. We would be happy to come back to you with comments on it.

804. Is there anything else you would wish to say to us that we have not covered?

(Professor Stewart) My Lord Chairman, we have been asked the questions that we thought we would be asked and we have been asked many additional questions. We are very grateful to you for turning up on a day such as this to listen to what AFRC has had to say.

Chairman] Thank you very much. We have had a splendid meeting. We are grateful to you for all the help that you have given us today.

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MINUTES OF EVIDENCE
TAKEN BEFORE THE
**SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY**
(SUB-COMMITTEE I)

Wednesday 22 November 1989

THE RT HON LYNDAL CHALKER, MP

OVERSEAS DEVELOPMENT ADMINISTRATION

Mr R M Ainscow, Mr A J Bennett and Mr V Heard

*Ordered to be printed pursuant to the Order of The House of Lords of
29 November 1988*

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NOTES OF EVIDENCE

TAKEN BEFORE THE

SELECT COMMITTEE ON SCIENCE AND TECHNOLOGY

(SUB-COMMITTEE B)

November 1989

Wednesday
10th November 1989
10.30 AM
Room 10.10

THE RIGHT HONOURABLE CHAIRMAN

OVERSEAS DEVELOPMENT ADMINISTRATION

Mr R. M. A. ...

Ordered to be printed pursuant to an Order of the House of Commons
20 November 1989

LONDON

WEDNESDAY 22 NOVEMBER 1989

Present:

Caldecote, V. (Chairman)	Taylor of Blackburn, L.
Flowers, L.	Thurlow, L.
Perry of Walton, L.	Walston, L.
Shackleton, L.	White, B.

Examination of witnesses

The Rt Hon LYNDA CHALKER, Member of the House of Commons, Minister for Overseas Development, examined; Mr R M AINSWORTH, Deputy Secretary, Mr A J BENNETT, Chief Natural Resources Adviser, and Mr V HEARD, Select Committee Liaison Officer, Overseas Development Administration, called in and examined.

Chairman

805. Minister, thank you for coming to talk to us in your busy life. Perhaps I may say right at the outset that I am sure we all welcome the recent increase in aid for voluntary agencies, the NGOs. We have been impressed on two visits we have made overseas by the dedication of their work and the very great cost-effectiveness of it. Therefore, we very much welcome this and are delighted to see it. Before we embark on the questions would you like to say anything by way of introduction?

(*Mrs Chalker*) May I thank you for that welcome for the 25 per cent increase for next year for the NGOs. It comes on top of a 49 per cent increase this year over the previous year so I am trying to put our money where we know it is well spent in the developing world. Perhaps I may first introduce my colleagues. Mr Bob Ainsworth is my Deputy Secretary, Mr Andrew Bennett is Chief Natural Resources Adviser and Mr Heard is head of our parliamentary unit. Apart from that, my Lord Chairman, I suggest that I may be able to help you more not by giving you my ideas but by answering your questions.

806. Thank you, Minister. May we start then with the first question: from where does ODA obtain impartial scientific and technical advice now that ODNRI, the universities and research councils can all be regarded as potential contractors with a commercial interest in ODA decisions? On this, Minister, I am sure you appreciate that if the outcome of some advice may affect whether the organisation gets a contract or not, and the grants are very important to their future on this customer/contractor basis, this could have a biasing effect on the advice?

(*Mrs Chalker*) I hope that it would never be so, my Lord Chairman. I also hope you will accept that the Overseas Development Administration is what is now known in the jargon as an "intelligent customer". Let me elaborate on that. We have in house 129 specialist advisers who are members of the ODA staff. In turn these advisers have a network of contacts outside the ODA in the UK and overseas on

whom they can draw in considering the more specialised issues within their disciplines. I feel that the changes we envisage in the way we contract research and other work from scientific and technical bodies in the UK will not in any way compromise the ability of staff to give objective advice to the ODA. I think we have enough checks and balances to make sure that that is so. Quite apart from the interests of such staff in making a sound contribution to development problems they would usually be dealing direct with the ODA adviser with considerable knowledge in the general field in the first place. Many of the institutions in which I know you are interested have long been contracted by the ODA to give advice and to carry out research and other work so there is no fundamental change in the general relationship as envisaged. In a number of areas we shall be moving from contracting outside institutions to undertake individual research projects to an arrangement under which they would manage a programme of research within a framework of agreed financial support over a period of years and agreed objectives, targets and milestones against which we will progress and the results can be assessed. It is those kind of changes, given the background that I have described, which lead me to believe that the ODA's capacity to obtain impartial advice in running its aid programme will not in any way be jeopardised. Also, because we have always been a department which judges companies by their reputation and their track record, we will continue to go on being objective. On a more general level ensuring that advice received is impartial but knowledgeable is always going to be a challenge. We are intent on keeping our eye on the issues and the problems to be solved rather than assuming that some particular kind of expertise or approach is necessary just because it is available; we will use them only if we believe in the interests of research we need to.

Lord Taylor of Blackburn

807. If I may follow that up, I can see the overall strategy, which I think is to be welcomed in many ways. One thing we have found is the very high

22 November 1989]

The Right Hon LYNDA CHALKER, MP, Mr R M AINSCOW,
Mr A J BENNETT and Mr V HEARD

[Continued]

[Lord Taylor of Blackburn *Contd*]

reputation of ODNRI. I have been amazed by what I have learnt of their various achievements. However, there is one thing I am worried about: where do they fit in in respect of this type of policy? I can see the role of the universities. Where you have a particular department of your own, if I may so call it, or an institution of your own, where does it fit into your policy?

(*Mrs Chalker*) I am grateful for what the noble Lord said about the ODNRI. I am indeed proud to be the Minister responsible for them. In a sense they are separate because it is ODNRI who carry out the research, carry through the programmes, give very specialised advice and work with developing countries in developing countries. I think they have a deservedly high reputation from what I have seen in the short time I have been the Minister responsible. They get on with the specialist work for different countries, but we have those 129 advisers in ODA who are separate from ODNRI. They advise and have input, of course, but the people who carry out the research are those at ODNRI. It is through their contracts in the developing world that they have earned the reputation. We do not rest just on our in-house advisers to judge projects; on occasion we top them up with advisers from the institutions, as I was explaining earlier.

Lord Walston

808. I quite understand how you assess the value of different projects, but how do you assess the relative value of competing projects? You clearly do not have enough funds or personnel to do every project, however deserving, that may come up. You have to make some judgments as to which are more important than others, both absolutely and relative to the time that it will take to implement them and the cost involved. Is that done in some centralised section of ODA or are there specialists of one kind and another who make an assessment for you?

(*Mrs Chalker*) All projects are considered in the light of the research strategy, which is published; that is to say, obviously we have for individual countries goals which we agree with them that we would like to achieve. Therefore, individual projects will form part of the research strategy for that country. True, they may indeed from time to time compete, but I think if the liaison is close enough and the basic understanding between the recipient and the donor is good enough—in this case, ourselves as the donor—then we will be able to pick and choose and to write the sort of cheque that will allow a research organisation to put up a suitable project that will fulfil the needs as agreed within the research strategy.

809. The sort of thing I had in mind, to give an example from our visit to India, is some very interesting and I am sure fine research that is being done on thalassaemia. I do not know how much of the funds for that came from ODA. So far as I can make out, it is a disease which, although serious in certain parts of the world, is not particularly serious in India itself. How for instance would the amount of money

devoted to that be assessed? Would people say, this is useful, it will help the Caribbean and it will help central America, the fact it is centred in India is neither here nor there; or would someone say, this is something which, however important, is not of great significance to India and perhaps we should not help in that?

(*Mrs Chalker*) I have been asking Mr Ainscow whether this is one of our projects because I have a feeling it is not an ODA project in total but probably is being done by the Medical Research Council and is part of a much wider medical research facility. I have, for instance, visited projects carried out by the MRC in different parts of Africa. Each of the projects in turn forms part of a much wider whole. I believe the project that the noble Lord was talking about is one such. There may well be—there nearly always are—British doctors involved in many of these things, but I believe that was something of a wider nature. The World Health Organisation often will get together with various countries and ask for specialist knowledge on a specific, particularly medical, problem in their case and combine their knowledge, in which case unless they are asking us for funds they may simply ask us for advice, and that of course happens on quite a different basis.

Lord Shackleton

810. I cannot recall the evidence that we had on the scientific staff. You said you had—?

(*Mrs Chalker*) One hundred and twenty-nine.

811. At what sort of level are they? Are they members of the scientific service? What grades are they? Also—I cannot remember—who is your chief scientist now?

(*Mrs Chalker*) I will ask Mr Ainscow to take you through the question because he is more familiar with the detail than I am.

(*Mr Ainscow*) The 129 people to whom the Minister referred cover a number of specialised disciplines. Not all of them are natural scientists by any means. A good number are social scientists. We believe that this kind of range of expertise is necessary in-house.

812. Of course.

(*Mr Ainscow*) However, there is a significant number of natural scientists. In the renewable natural resources sector, for example, there are 28 and they cover areas like research, environment, animal health and fisheries. We have 20 in the engineering sector, which covers renewable energy and electrical and mechanical energy, architecture, physical planning; and there are five or six health and population advisers. Many of these have a natural science background. At present there are two chief advisers with a natural science background. There is Mr Bennett, whom you met when we gave evidence at official level, who is the chief natural resources adviser and, I think, closest to being the chief scientist in the ODA; and there is Mr Pike, who is our chief engineering adviser.

813. What grades are they?

22 November 1989]

The Right Hon LYNDA CHALKER, MP, Mr R M AINSCOW,
Mr A J BENNETT and Mr V HEARD

[Continued

[Lord Shackleton Contd]

(Mr Ainscow) Mr Bennett is grade three, and under secretary level; and Mr Pike is grade five, assistant secretary level.

814. So you have only one grade three, and he is a scientist?

(Mr Ainscow) A natural scientist, yes.

815. You are going to be confronted with some major problems. I do not doubt that if you wanted advice on anything, Minister, you could go out and get it where you needed it from; nonetheless, you cannot do that because you have not the time. Take the rapid development now of remote sensing. ERS2 is nearly approved and the British have managed to claw back the polar platforms, despite some of Mr Clarke's observations at that time, but I do not ask you to comment on that. This will be a very big area and presumably will be of considerable concern to your department. I can well understand it if you think ODNRI are the right people to advise you on that because they probably would not be contractors. It is a growing and important area. I wonder whom you have to do that? I suppose you may have to recruit?

(Mrs Chalker) The NERC would certainly give us advice on something of that nature.

816. If I may say so, I doubt whether they are capable of it.

(Mrs Chalker) I was going to say that they would be one of the early ports of call. As scientific knowledge is expanding at such a rate I think we are open to advice always as to whence the right technical help should come. The British National Space Centre is also a source of advice to Government—not only my department, but other departments also. At present I think those are the main ones from whom space advice would be coming. As I say, developments are taking place very fast. This is one reason why the number of natural scientists we had a few years ago has now changed: it has increased, and rightly so. At the same time it may mean we do not need quite so many engineers and economists in future, although I do not see their numbers going down because we have so many projects that involve their expert advice. We are prepared to go out and get the expert advice that we need. When we do not have it in-house we will go and get the best available, and not only in this country because I hope we would share advice among others who may have the same objectives as us, whether on an international or a European basis.

Chairman

817. Thank you, Minister, that is very encouraging. In their initial written evidence to the Sub-Committee ODA said that their response to the decline in the UK's research capacity for developing countries would be "to encourage the retention of capability in key areas by concentrating its resources". What are those key areas and how have they been identified?

(Mrs Chalker) I believe the question refers to our memorandum on renewable natural resources. The

key areas are those listed in the renewable natural resources research strategy. I shall not give them in any order of priority: resource assessment and farming systems—that covers land use and agronomy; integrated pest management—for instance, plant pathology, entomology, weed science, biological control; agricultural engineering, including farm power, tillage and such things; food science and crop utilisation, which covers storage and processing of food; plant sciences, plant physiology, plant breeding, animal production, which includes nutrition management and breeding; animal health, which mainly means disease control; forestry/agro-forestry, including conservation and social forestry; fisheries includes aquaculture and genetics. Then there are a lot of other specialisms like biotechnology and environment. We have identified these in chapter 4 of the research strategy, which is the big tome made available to you, my Lord Chairman. Essentially this looked at the economic importance of the commodity, the likely productivity of research work, the UK comparative advantage and a consideration of how scientific research specialisms fit with the commodity characteristics. The public version of the research strategy, which is a summary of the full document that you have read, my Lord Chairman, will shortly be available. This has been aimed specifically at informing the British scientific community and we shall indeed be bringing it to the notice of the many scientists who can help us in this way.

Lord Perry of Walton

818. How far was the identification of these strategic objectives determined by consultation with the recipients of aid and how much by the advisers in the UK?

(Mrs Chalker) It is a little difficult for me to say it was 50/50; that would probably be ideal. I think it depends very much on topic. Some recipients of aid have much more knowledge about their own local environment than others. Where they have that knowledge of course we would be taking that into account, but some do not have the information. We spend differently with different groups who give us information. It will always be a balance of considerations. Very often how well we do with any particular agency that we would like to help may depend on how communicative they are with us. It is not a one-way process; it must be a two-way process. We should like to think that the attempt that we are making to bring the research strategy to the notice of all British scientists will help this two-way communication.

819. In the original statement you mentioned specifically the commercial aspects of the topics. One reason for my question was how far these commercial aspects are British-directed and how much user-directed?

(Mrs Chalker) We always hope that we are fulfilling the user's needs. On the other hand, if we have a good British agency that can carry out the work, our preference would be to go British, I think. If

22 November 1989]

The Right Hon LYNDA CHALKER, MP, Mr R M AINSWORTH,
Mr A J BENNETT and Mr V HEARD

[Continued]

[Lord Perry of Walton *Contd*]

it is not the best, let me hasten to add that I will not sacrifice what is best done just because it is British; it must actually come up to the objective that we set for the research. It must meet the criteria.

Chairman

820. We are very glad to hear that. Does a similar problem of decline occur in other sectors? Your answer concentrated mainly on the renewable natural resources field.

(*Mrs Chalker*) I think it is not so much a decline, it is a question of adjusting what we do through ODA to what is now needed. As I said, priorities have changed. It was not an exhaustive list that I gave you; it was a renewable natural resources list. In other areas it would be fair to say that we are guided by what is happening in the international research field and not only by what is happening in Britain. The whole thing is very integrated, not separate.

Baroness White

821. In relation to that, may I ask for comments on the report that appeared in the Times Higher Education Supplement of 20 October about the ODA's current attitude towards the London School of Hygiene and Tropical Medicine and the corresponding school in Liverpool; and the report that, because of changes in emphasis, ODA will be removing the money for special research centres on nutrition, population, health evaluation and planning. (Whether "planning" refers to health evaluation or population studies I am not quite clear.) On the face of it it looks as though the reorganisation of research in British universities may be deleteriously affected by changes in research that is geared to countries with which ODA is most particularly concerned?

(*Mrs Chalker*) I would certainly hope that what the noble Baroness has said is not right. What we are seeking to do is to change the way in which the money is made available. I have taken a particular interest, as I think the noble Baroness realises, in the Liverpool School of Tropical Medicine and in focusing their views on new objectives to be achieved, and I hope that they will be able to be even more effective in future than they have been in the past. I think it is very much a question of targeting our key priorities and work in health and population will certainly continue apace. However, simply making the priorities fit better with what the countries themselves are doing and with our plan of research across more than one country, let alone one continent, must also have a bearing on the cost effectiveness and the way we spend our money, so we are trying to target better. We are trying to get even more out of the research that we are doing.

822. How far do you collaborate with the Medical Research Council on this?

(*Mrs Chalker*) It will depend.

823. In these two particular institutions, for example?

(*Mrs Chalker*) I was about to say that it depends

on the area of research as to whether there is a project involving both the MRC and the London school or the Liverpool school. I do not know whether Mr Ainsworth wants to add anything on specific issues. I have been quite pleasantly surprised on my visits as to the degree of inter-relationship and co-operation between the individuals carrying out the research as well as on the topics being researched.

(*Mr Ainsworth*) On the specific question of the MRC, part of the funds available for health research from the ODA is made available to particular projects through the Medical Research Council tropical health board—I cannot remember the precise title—and the London and Liverpool schools are among those who propose to the MRC projects for financing through that channel. It is not the only channel by which we fund these two schools. We have special relationships with both which we anticipate will continue, and we do not anticipate any reduction in the level of support for either of the schools.

824. Simply a reorganisation of the work done?

(*Mr Ainsworth*) Yes.

825. In other words, you will not deprive them of resources for their general upkeep which would mean you had no organisation left to sustain your particular interests in research?

(*Mrs Chalker*) I can reassure the noble Baroness, my Lord Chairman, that that is not our intention in any way. Like any organisation—and I speak rather naughtily about Liverpool since they are close to me geographically and in aims—we all need to give ourselves a bit of a rejig now and again to make sure that we are getting the best value out of the programmes and the way in which we organise our programmes. I think that is true of any existing institutions as well as of any company.

826. So you feel there is no reason to be unduly alarmed by the report to which I have referred?

(*Mrs Chalker*) I am not alarmed at all by the report in the newspapers. I learnt a long while ago that if they have an idea in their head they print it regardless of the basis on which it is formed!

Chairman

827. Thank you, Minister. Are you satisfied with the distribution of funding between different types of aid, for example, technical co-operation, capital aid, academic links? Should the balance be altered in any way?

(*Mrs Chalker*) One thing I dislike very much is rigidity. If my comments are set against that background of appropriateness rather than rigidity, therefore, I think you will understand me best. We do not decide from the top, the centre of ODA or my office the particular amounts within bilateral country programmes that will be used for each type or form of aid. The decisions on how much within the funds allocated to a particular country should be used for technical co-operation, including academic links, or for capital aid are made at the individual country level in the light of the assessment of the country's needs, what its own government would

22 November 1989]

The Right Hon LYNDA CHALKER, MP, Mr R M AINSWORTH,
Mr A J BENNETT and Mr V HEARD

[Continued

[Chairman *Contd*]

like us to do, what other donors are doing—other bilateral donors and multilateral donors—what we are well equipped to do and how we judge we can be effective to the government of that country. When we help to address a particular issue or problem therefore there are various forms of aid that might be used in combination. The supply of plant and equipment and the supply of British expertise, whether in the form of technical co-operation officers or consultancy firms, along with the provision of training in the United Kingdom or training locally or, if necessary, in a third world country and the provision of funds to cover local inputs, whether people or goods and services, all mount up to a whole package, trying to meet the individual countries' needs. Therefore, it is a case by case allocation. We try to assess the balance in relation to our efforts and objectives for a particular country but at the same time in relation to the particular projects and programmes. I can honestly say that a judgment on global balance would mean little if I were to attempt it. We do try to judge with the country and as appropriate at the point of their development, which does change.

Chairman] I am sure we welcome that assurance, Minister. We were all impressed by the lack of unnecessary bureaucracy when we visited abroad; it seemed that answers could be gained quickly and funds were available for specific projects, as you have indicated, where they seemed most necessary.

Lord Taylor of Blackburn

828. Perhaps I may emphasise that. We learnt on our visit to Africa the way in which your people in East Kilbride could interpret something very quickly and, if there was a need, immediately make decisions and make money available. I speak not about large amounts but about small amounts, and this had a great effect on the community that needed help at the time. It was good to see that they did not have to follow a rigid pattern of going up and up and getting things agreed at Stag Place but that even a chappie not all that high up in the department, with great respect, could make a decision and get on with it.

(*Mrs Chalker*) Another way in which we do that is through our Joint Funding Scheme with the NGOs where the NGO can decide what is needed on the spot. Even Ministers sometimes, who are far less expert than the people in East Kilbride, I might say, will say, okay, that is what we need in *this* place, and do something about it quickly. It is the ability to respond on the ground.

Baroness White

829. How far are you able to follow your principle of case by case allocation beyond a certain point in the matter of overseas students in the United Kingdom? We have been given the most recently available statistics from the Universities Statistical Record which indicates that the number of overseas students on grants funded from the aid programme, for which presumably you have some responsibility,

is now marginally less than it was in 1973. However, for students who are self-financed because they are from rich parents or rich countries the numbers have gone up considerably. They are of great benefit to UK universities, as you know, because they have to pay full fees, which students do not. Are you happy that the students who ought to be at our universities are getting enough help and are not unduly affected by individual or national lack of resources?

(*Mrs Chalker*) The first thing to note is the increase from £46 million spent in 1984 by ODA to £101 million in the 1988 calendar year on students and trainees.

830. Coming to this country?

(*Mrs Chalker*) Yes. Indeed, in 1988–89 the total ODA support was over £83 million, bringing more than 13,500 students to this country, mostly from the poorest countries in the developing world on which we concentrate that sort of training because they cannot get it in any other way. As the noble Baroness says, some others may find other ways of getting it. We have tried to concentrate our help on the poorest. We have the largest Technical Co-operation Training Programme ever. It is an integral part of our aid programme. We try to dovetail it with aid assisted projects, the things that we are doing. In addition we have the Commonwealth Scholarship and Fellowship Plan for the developing commonwealth countries, a Sino-British Friendship Scheme which gives grants, the British undergraduate fellowship scheme for disadvantaged black South Africans, the Nassau fellowships for post graduate awards for black South Africans and the ODA shared scholarship scheme, so we are quite keen to find the right way of bringing students even when they come from countries where it is more difficult for them to be allowed to come and study here. There is also the diplomatic wing support, which was some £16 million for more than 5,000 students in the financial year 1988–89. We therefore have a variety of schemes that we try to tailor to get a real cross-section and to bring students who would otherwise be denied the opportunity to study here.

Chairman

831. But it is a fact, I think, that the cost of university places in this country has been increasing over the years by government policy?

(*Mrs Chalker*) Yes.

832. Are you saying that the funds available have been increased to ensure the same number or, one hopes, more are able to come to this country, or has the increased cost of coming here resulted in reduction in numbers?

(*Mrs Chalker*) There is obviously an increased cost in students' fees for overseas students, but we have also increased the amount of money available. I have now laid my hand on the total figure for 1988–89, which is over £110 million in support of 22,000 students from overseas, that is, taking in all the schemes that I mentioned a moment ago. So, yes, the cost have gone up but so has the money, and we are gradually increasing the numbers yet again.

22 November 1989]

The Right Hon LYNDA CHALKER, MP, Mr R M AINSWORTH,
Mr A J BENNETT and Mr V HEARD

[Continued]

[Chairman *Contd*]

By the end of the year, as one example of something that we did not touch 10 years ago, about 1,000 black South African students will be having their studies paid for by the United Kingdom Government.

Lord Flowers

833. I am very encouraged by what the Minister has said about overseas students. Has the Minister examined from first principles the balance between training and going out and helping with particular projects? What I have in mind is that in the short term if there is a problem in a far off country where we can help, no doubt the best thing to do is to help them on the spot; but, from the long-term point of view, we do better by training their own people here to go back and set up shop themselves and do it. Do you have a rationale behind the balance of resources that you use for these different purposes?

(*Mrs Chalker*) I do not think there is a specific rationale that one could say is applied in all cases. One thing I have been encouraging—this comes from my old days of my roadbuilding background—is that wherever we give advice or have a project in a country we should look at it as a whole, that is, not simply to carry out the project with the nationals of that country but also to train their own people to do the job and continue the maintenance of that job thereafter. If not, I am afraid one can see that they are now no longer viable or working simply because the maintenance was not carried through and there is no one there with the knowledge of how to carry them on. We are trying to have a strengthening of the institutions in the country so they can continue training. Sometimes that would involve us training the trainers to carry on the training in the country in question as well as having students coming to this country. Thus there is a combination of the two approaches, training students here and in their country of origin and training their teachers to teach further on the project.

Lord Perry of Walton

834. You gave us two figures for the numbers of students which stick in my mind. One was 13,500 some years ago and the other 22,000 this last year?

(*Mrs Chalker*) Not quite, my Lord Chairman. If I may be so bold as to make a correction, the total figure for 1988–89 is that we are providing support for more than 22,000 students from overseas. That is HMG as a whole. The specific support from ODA for the same period was 13,500. In addition to us there is the diplomatic wing, the Department of Education and Science, the DTI, and the British Council.

835. What proportion of the 22,000 is in science and technology? Has that number in science and technology gone up as the total has or has it gone down?

(*Mrs Chalker*) I am almost certain I am right in saying it has gone up, but I cannot say by how much, my Lord Chairman. Off the top of our heads I am

afraid we cannot say now, but we will try to let you have a figure.¹

Chairman

836. That would be very helpful, Minister. The proportion of technical co-operation as a whole in fact has risen over the years?

(*Mrs Chalker*) Oh, it has indeed.

837. The Sub-Committee perceive some scope for confusion in the complicated relationship between the British Council and ODA. How could this be clarified? Does ODA make sufficient use of the local contacts and knowledge acquired by the British Council? Those of us who visited Nigeria and Ghana were struck by the apparently complex nature of the relationship between ODA and the British Council but also by how well it worked. It seemed to us that it worked principally because of the personalities involved—they were all dedicated, all working together very well—but if the personalities were not so good or perhaps there was a slightly different attitude, it might not work so well because of the complexity of the relationship. Can you help us on that, Minister?

(*Mrs Chalker*) First, I think you are right in seeing the relationship between the ODA and the British Council as highly complex, but that is the nature of the beast, if I may say so, because we try to adapt to the situation we face in any country. Complexity can sometimes produce operational difficulties, but then one has personal relationships that are difficult sometimes within a firm close together, so it is not just between ODA and the British Council. I find the relationship remarkably close and pretty well established. The respective headquarters of both are in London at present. The 65 developing countries overseas where the British Council has an office are in close touch with our missions, in which there is often an aid secretary or assistant. In half our aid recipient countries there is a British Council representation varying in size obviously. We finance the council from the aid programme in a number of ways, but we need considerable care to make sure the arrangements are efficient, cost effective, business like and friendly and that they work, which is what we are after. Certain changes in the contractual arrangements under which the aid programme finances council work are in train at present. This is all about getting the best value for money. It will take a little time to accomplish, but the new arrangements I hope will give a clear relationship for the work we are doing together and provide a greater clarity as to the precise services the council is providing for us. On the local level we make great use of the council's local contacts. It is right we should do so because the council's own activities in many developing countries are financed for the most part by Government by grant to the council, which comes out of the aid programme. We will often have a council representative with very close links with the

¹ Note: Figures are given on p 17 of *British Aid Statistics 1984–88*.

22 November 1989]

The Right Hon LYNDA CHALKER, MP, Mr R M AINSCOW,
Mr A J BENNETT and Mr V HEARD

[Continued

[Chairman Contd]

high commission or embassy in a developing country. Indeed, in some cases the council has diplomatic status and is part of the post itself. We draw on the council's advice through the embassy and by direct contact for visiting ODA officials and for Ministers. I always make it part of my visits abroad to see and spend some time with the British Council people as well as with our own technical co-operation staff. It may interest the Committee to know that the British Council representative in the Pacific, who is in our headquarters in Suva, is also the education and training adviser for ODA in the Pacific, one and the same person. He works on separate accounts, but seems to co-operate quite well with himself!

Baroness White

838. Does he draw two salaries?

(Mrs Chalker) No, just one! There are two sets of accounts.

Lord Thurlow

839. We were very impressed both in India and West Africa by the work of the British Council. The more that ODA is able to use the British Council and its instrumentality it seems to me the more cost effective it will be?

(Mrs Chalker) I would hope so. It all depends, however, whether they put up cost effective proposals to us because if they do not I am afraid they are in competition like everyone else.

Lord Perry of Walton

840. I have been very closely connected with the Indira Gandhi National Open University development and I have found the relationship between the British Council and ODA extraordinarily complex and not terribly efficient.

(Mrs Chalker) I will take careful note of what the noble Lord says and look into it.

Lord Thurlow

841. One point made to us when we were visiting was that the living allowance given to overseas students was kept down by the Treasury to a level that made it very difficult for students to do anything other than live. I am sure that we all want students who have the chance to study here to be able to take advantage of many aspects of British life and to have a little fun into the bargain. Is there any possibility of taking up the cudgels on this to get a bit more money for students to be able to swing a cat?

(Mrs Chalker) I think I might be in trouble with a different lobby if I were to give students money to have too much fun! I suspect that the review of amounts will always be fairly tight. I seem to remember 28 years ago it was fairly tight too for British students. I would not hold out too much hope to the noble Lord that the Treasury are likely to relax their point of view on that issue.

Baroness White

842. They will not have to take loans though, will they?

(Mrs Chalker) I do not think so.

Lord Thurlow

843. We were very glad in India to hear that you had recently approved increasing the diplomatic wing's rations for visits. This has always seemed to me one of the most worthwhile and, in the long term, effective ways of helping British interests. A million pounds in India is a lot of money no doubt. I personally would like to see an enormous increase in relative terms in this field, if necessary at the expense of some other avenue of aid. Does that strike any answering chord?

(Mrs Chalker) I think it was the noble Viscount the Lord Chairman who at the beginning said that there were so many calls on one's aid that it is always difficult to say, do I do more here if that will mean less to another deserving call. One thing I have noticed about study fellows from India—in total there were about 1,875 in 1988–89—is that those people studying come to do so perhaps a little later in their careers. In answer to the noble Lord's earlier question, some continue to receive salaries in India even while they are studying here. We have certainly come across that quite recently. It would be fair to say that we will take as many as we can and expand scientific training where we can, but it would be wrong to hold out too much hope of further expansion except along the lines that I have already indicated. That expansion has been going on quite steadily over the last five years and I see no reason why it will not continue.

Chairman

844. Given the apparent difficulty which ODA has in transferring technology from its research units to end users, what steps will be taken to improve product development?

(Mrs Chalker) The difficulties in our evaluation report EV 422 relate to work on producing specific items of equipment—automatic sediment samplers, animal-drawn tool carriers and suchlike. I think that is slightly distinct from the development of techniques or the investigation of particular issues and problems. The first thing I would say is worth noting is that some of our research work has required the development of certain scientific equipment in order to achieve its scientific objectives. These subsequently have a small and specialised market. We have examples; in the water sphere, sediment samplers, canal bed infiltration metering devices, instruments for measuring soil moisture movements and so on. The work in the research institutions is to develop products for a wider market in the third world countries, and can be difficult. We have recognised those difficulties. It is clear that there is a wide range of expertise that needs to be brought to bear on the process. In addition to the technicians and scientists, the early involvement of production engineers and marketing and financial personnel is needed. We find it is usually better for the research institutes to concentrate on the basic principles of the equipment rather than to go down the road of the detailed design

22 November 1989]

The Right Hon LYNDA CHALKER, MP, Mr R M AINSWORTH,
Mr A J BENNETT and Mr V HEARD

[Continued]

[Chairman *Contd*]

stage which often needs local adaptation to local conditions. I think we have learnt quite a lot of lessons quite well. We are using the approach I described in our work on the design and testing of hand pumps for water, water quality testing kits and work on improved cooking stoves. We have long recognised the point that the technology involved should suit the use of the product in developing countries as well as its manufacture and maintenance overseas. We have the work of the Intermediate Technology Development Group going on, which the ODA have supported for some years. We require them to take all these issues fully into account.

845. We were very impressed with the evidence that we had from the ITDG. I think that is a very important factor in this respect. Would you agree, Minister, that the best way of making these product developments effective is for the specifications maybe to be made by the ODA research unit but for the work to be done in commercial organisations?

(*Mrs Chalker*) It may be so. I think it will vary according to the degree of sophistication of the product. Frequently one could make the specification, but then in the developing country the simpler the product the more useful it will be over the long term. Therefore, the brilliance of scientists at home may sometimes need to be tempered with the practicalities of the use of the equipment in the recipient country.

Lord Perry of Walton

846. This is a silly question really: if money was freely available and there was no constraint from the Treasury to give aid, how many of the applications that come in would you want to fund? I have no idea of the scale of what you would regard as high quality applications. It is the same question that one asks in respect to applications of research councils. How many of these are turned down?

(*Mrs Chalker*) I have no idea for ODA. I remember when I was a member of the National Council for Research into Crippling Diseases that we reckoned then we took about one in 20. As to whether it is the same, I would have to ask Mr Ainscworth or Mr Bennett. In those days we were taking a maximum of one in 20.

(*Mr Ainscworth*) On the research side—and I think the noble Lord is addressing the research issues particularly—it is clear to me that the chief advisers who manage the research money for the most part all have proposals that are worth financing which cost more than the money we are able to allocate to them. Whether Mr Bennett wishes to speculate on the proportion of good projects that are turned down I do not know.

Chairman] I think what Lord Perry is after, and certainly what I would like to know, is not the research projects but the products. Roughly what proportion of the ideas for new products—a planting machine or whatever it is—do you have to turn down, is it 1 per cent or 20 per cent?

Lord Flowers

847. That is, what proportion of those which are worthy of support?

(*Mrs Chalker*) I think I should say thanks to the noble Lord Lord Flowers because I was just going to come up with the same point. We do get some wonderful inventions leading to wonderful products, but they are totally impracticable. Perhaps Mr Bennett can help on the ones that are worthy.

(*Mr Bennett*) My Lord Chairman, I cannot give an exact answer to that. We like to try to identify what the problems are at the field end and develop the sorts of equipment and products that are needed. There has been one notable example of success where the Institute of Engineering Research (AFRC) at Silsoe has developed a whole crop harvester of sufficient size and simplicity that it can be manufactured and used in Pakistan and countries where the technology available is relatively weak. Where the need has been identified you will find that we have been able to find resources. What we are trying to do is to stop this rather fruitless pursuit of money where we do not know what the demand is at the other end. Therefore, we are trying to give more guidance to people on what topics we think need to be worked on, where existing products are deficient and how we might work with others if necessary.

Chairman

848. But by and large you do not think many good ideas for products have to be discarded?

(*Mr Bennett*) I would like to think that if we are unable to help these people ourselves there are other means by which we can assist them or point them in other directions.

849. Is the private sector sufficiently taking up these products that you initiate to put them into what one might call volume production, in so far as volume is required?

(*Mrs Chalker*) One of the first things that any private producer will require to know is whether there is a viable market to put it into production.

850. Of course.

(*Mrs Chalker*) The ideas that come to us often have not had a good market survey so the advice we would often seek to get the inventor to take forward is what sort of market is it, where is it, how sophisticated or simple must it be to succeed in that market and then what resources would be available to purchase it for that market; I would hope they would be looking not just to the British Government but also to the government of the country and possibly to international agencies if it was to be a winner, which this whole crop harvester seems to be for Pakistan and maybe other countries.

851. We were impressed by a number of devices of this kind that we saw in the International Institute of Tropical Agriculture in Nigeria. It is very simple equipment, but one or two of them there who

22 November 1989]

The Right Hon LYNDA CHALKER, MP, Mr R M AINSCOW,
Mr A J BENNETT and Mr V HEARD

[Continued

[Chairman Contd]

thought it was very good said they had found it difficult to get it made in any quantity. This seemed a pity because it was not exploiting to the full the previous work that had been done.

(Mrs Chalker) We go back to what I said a few moments ago about the simplicity of the product in the country because the simpler it is the more likely one is to be able to get the local production. These countries are in fact looking for local production in order that within their own continent they may create an export market. I think of the very simple windmill that was developed as a result of basic research and is now being manufactured in Kenya and exported to 12 other African countries at present. It is very simple, and that is why it has worked and will work in the purchasing countries also.

852. What changes do you expect in the United Kingdom's scientific and technical aid to developing countries in the next ten years? It is a difficult question, but it would be helpful if we could have the benefit of your advice on that?

(Mrs Chalker) I think you are asking me to look into my crystal ball, as every Select Committee always does. I will try. ODA must show a capacity to respond to the key issues that will be of enormous importance into the next century. These include a wide range of environmental issues. Some are specific and local. Others may have a global impact, including their effect on climate change, for instance. The environmental issues have to be reconciled with sustained economic and social development, including the alleviation of poverty. The challenges that we need to meet are pretty immense. We have to cover the forestry issues, energy efficiency and the need to switch away from chlorofluorocarbons. We need to reduce the dependence on pesticides, to use bio-technology, to make advances in plant and animal production. However, we also need to make advances so it is easier for people to space their families and limit their family size. There are many cross-cutting technical and social issues here. In terms of technology we could reasonably expect key developments in the field of vaccines that might control fertility (voluntarily, I underline immediately), the development of male methods of contraception and further technology may help the pharmaceutical companies to find cures or indeed preventive vaccines for AIDS. The whole question of family planning also depends on families being confident that the children born have a good chance of survival. Here I think we should be looking to see whether biotechnology can help deal with the organisms that cause malaria, bilharzia, sleeping sickness, river blindness, elephantiasis and leishmans disease. There are many areas of research in family health where we can assist. I have been impressed by what I have seen in rural health clinics working with mother and child because there, with increased education for the woman and in better health care for the woman and her children, one begins to see the voluntary restriction of the size of family, as already evidenced in Thailand, Zimbabwe and a number of other countries, so there is an area there on which we will

need to be concentrating. Over the next decade I would also hope to see the strengthening of scientific and technical capacity in the developing countries themselves. I referred earlier in my evidence to improving the institutional capability and capacity of institutions in developing countries. In many fields it may also be that UK expertise, particularly that of a rather specialised kind, will be needed for regular though relatively short periods of work overseas; in other words, to put in the expertise for a short, concentrated period; working with the best minds of that country, giving them a head's start to carry on the work for themselves. In that way there may be a reduction in the proportion of people who have to spend long periods overseas on assignments. That sometimes in family terms can be very difficult for scientists, however willing they are to go. The ODA financing of work in British institutions I think will need to take account of this so that we have a capacity to help in the most relevant way possible and we maintain that. The Development Assistance Committee will consider the week after next at ministerial level the strategy for using aid to assist development through the 1990s. We have a draft paper. If it is adopted we shall have a series of DAC follow up meetings, including on the role of science and technology through the 1990s. The report of your Committee, my Lord Chairman, will be very valuable as input to this. I would not set any hard and fast rules, but all information is welcome. We will obviously be selective out of need to be selective, but I think we can see a developing future for ODA although it may change in its intensity and geographic coverage from time to time.

Chairman] Thank you, Minister, you must have a very splendid crystal ball. I wish to make two points. We were very impressed in respect of the question of family planning population control on our visit because we saw this paradox, that every time we are successful in helping child welfare and everything in that field, it tended to increase the population and therefore increase the problems that we were helping to try to make an effort to solve in every direction. That therefore seems to us a very important part of the programme and we are delighted to hear that you are concentrating upon it. The other thing very dear to my own heart is the ITDG sort of work, and you have mentioned the importance of making developing countries technically self-sufficient so that they could produce more of their own requirements. This we thought was also very important.

Lord Perry of Walton

853. I was most impressed with the programme, which seemed a splendid one. However, it appeared likely to cost billions rather than millions. It is difficult to see more than a fraction of it being carried out with the current levels of budget provided to your department.

(Mrs Chalker) When I was gazing into my crystal ball for you just now, I was seeing in global terms what the collective aid effort is. We work very closely

22 November 1989]

The Right Hon LYNDAL CHALKER, MP, Mr R M AINSCOW,
Mr A J BENNETT and Mr V HEARD

[Continued]

[Lord Perry of Walton *Contd*]

with the World Bank, with IDA, with our European partners and so on. The collective donor effort is indeed some £50 billion but we will concentrate on things where we believe we have not only the expertise but also the entrée with a specific country to give them help. To give an example of an area where we think we can help very greatly, there is the whole question of the development of clean water and sanitation because, with population growth, there are increasing demands not only for clean water but also for sanitation. We believe that not only can we give the technology that we have at the time but we should continue our research into appropriate methods of delivering clean water, removing liquid and solid wastes and discussing with the countries concerned the re-use of effluents for industrial and agricultural purposes. There is a whole range of expertise here with endless examples that have been developed by British scientists, technologists, engineers and companies. I give four names, and you are welcome to more information about them. We have a collaborative research project between the University of the Suez Canal, Ismailia, Egypt and Portsmouth Polytechnic in gravel bed hydroponics. We have a composting system, a joint project between Leeds University and the Agricultural University of Vicosa in Brazil, all again dealing with the question of the bulk of solid waste from developing country cities. I can go on through reams of these good scientific developments that have come from the collaboration between ourselves and developing countries where I think we must underpin any World Bank ideas by our own specialist technology. It is a combination of international and bilateral.

854. I fully accept that, and it is very nice. It still leaves me with a worry in the sense that I read the other day that Japan's current aid programme—it is a very wealthy country compared to us—is now running at £10 billion. The amount given by individual countries on a bilateral programme is bound to have a long-term effect on the goodwill of different kinds of these developing countries?

(*Mrs Chalker*) Japan may very often spend rather more money than we do, but her money is often used on British inventions, which is really rather good. We have good liaison with Japan. They are now beginning to put money forward for Africa in a way that five years ago they were not. Part of the reason for that I firmly believe has been our contacts with Japanese Ministers and officials in that period of time. We know they have the money and we have the expertise. What is better than putting the two things together for the developing world I cannot think. I do not really mind where the money comes from within reason as long as we can get the technology shared with the developing world.

Chairman

855. Your forward look was mainly concerned with increasing knowledge through research in these various fields, I think. I am sure you would agree that it is very necessary to apply at least a substantial

part of the resources to ensuring that that knowledge is applied and used effectively?

(*Mrs Chalker*) Indeed, my Lord Chairman. The management of our resources, whether scientific or practical and project facilities, we give regular review to in the department and in developing our strategy forward. As I said in answer to the first question, I think, we are always looking with the recipient country at how we can make the expertise of the donor country better applied. That is what we are after.

Lord Taylor of Blackburn

856. Minister, you gather from the questions that we have put to you that here is a group of people who are most anxious to support and give you as much help as we can. You inherited a very good department and we are very pleased with the way in which the department has been led for quite some time now. Your forward look was good, but can you tell us any way in which you feel we can go a little further than you have done in trying to help you?

(*Mrs Chalker*) I think that might be tempting fate, my Lord Chairman! The noble Lord is right to say that I inherited from my predecessor—

857. Predecessors.

(*Mrs Chalker*)—particularly from my immediate predecessor a very new look at how ODA should be performing into the 1990s. To that I am trying to bring what has been described as a greater hands on approach, that is, to make the practicalities work. I am convinced the reason I will be able to achieve that is because of the advice, which is first class. I do not think I have ever said this in ten years of government before, but I have never been so pleasantly surprised as I was to discover exactly what ODA contained down in its depths rather than what was necessarily published and known. Only a tiny part of the whole ODA story has hitherto been known, and it deserves much wider understanding. I think it is on that score that your Lordships' Committee might help, that is, to make people realise that we are very conscious we are spending the taxpayers' money and we are determined to get every bit of value out of that money and to apply the research and the productive capacity and training in the most effective way possible. We learn from the developing countries too as we apply projects in their countries. That is an important thing that is sometimes overlooked by the great British public who think it is all give from Britain and take from the developing world; it is not, it is a two-way process.

Chairman

858. Minister, you mentioned in your forward look the importance of forestry. It has been suggested that ODA's declared intention to expand its forestry activities will be limited by the shortage of UK foresters with developing country experience. Is this the case? If so, what can be done to correct matters? In what other areas are similar difficulties encountered?

(*Mrs Chalker*) First, there is a shortage of UK

22 November 1989]

The Right Hon LYNDA CHALKER, MP, Mr R M AINSCOW,
Mr A J BENNETT and Mr V HEARD

[Continued

[Chairman Contd]

foresters with the tropical forestry experience that we need, there is no question of that. We are taking some steps to ensure that we have the expertise to deliver the forestry initiative. We have three in-house forestry advisers plus another four with a further three being recruited at ODNRI so we will have one of the best forestry teams. We are also considering the need for a specialist forestry post in some of our development divisions. We now have a forestry adviser in the British high commission in New Delhi. He is there as a natural resources adviser, but he is actually a forester. We are increasing our core of specialists from four to 11 foresters. The number of foresters among our associate professional officers scheme has gone from two in 1987-88 to four in the current year. We are developing further our existing strong links with the Oxford Forestry Institute. We have offered in principle to support their proposal to develop an international forestry research information centre and library. We need a little more detail on that before we can finalise it, but we are considering it. We are also considering how we can make use of the forestry resources that exist in British universities, among some of the charities and among the consulting firms and other institutions. In addition there are some 26 technical co-operation officers working in the forestry sector in developing countries at present. A total of 188 overseas trainees will have attended forestry courses in the UK by the end of this financial year so we are trying to build up expertise too. I am not aware of any particular difficulties we have found in other areas; that has not struck us particularly. There is one other thing your Lordships may find useful. You may remember that we have done a forestry report before. There will be published on 12 December next a quarterly supplement to British overseas development, which updates our existing activities and shows just what is going on around the world. Again, it is a good list.

859. We have done very well, Minister, with your help. Perhaps we may ask the last question. Could science and technology contribute more effectively to the aid programme if there was more sustained effort on sequences of similar activities in fewer sectors?

(Mrs Chalker) As a general rule we will always need a sustained effort involving the donors over a number of years if aid is to be effective. It is particularly so if institutions are going to be strengthened in those recipient countries. I think you know full well that we are often trying to do very difficult things in difficult places. We do not choose the easy jobs. I will accept that this applies in science and technology just as much as it does in development. In much of our aid of this type over the last few years we have tried to focus our efforts rather better and to bring together the different forms of aid, trying to make sure the purpose and objectives of the assistance that we are giving are clearly specified and that we make sound provisions for the results of the work to be measured and judged. There are many fields related to science and technology where our assistance to

particular programmes and institutions has continued over many years. I am happy to give examples, should you wish. To give just one now, in Kenya, the Nairobi and Kenyatta Universities, we have been providing assistance in the form of BESS (British Expatriates' Supplementation Scheme) supplementees and training awards in science facilities for at least 15 years. Kenyatta University, as you will know, is concerned primarily with pre-service training of secondary school teachers. ODA's assistance to this university has contributed as a side effect to the curriculum development within the secondary schools' science education. We have followed that up in the schools by providing the science equipment so we have carried through from training the trainers right the way down to the pupils. I was very proud to go along with test tubes and school equipment for some secondary schools right out in the bush. In that way it is not just postgraduate training; we carry the process through to try to make it a continuing successful help. At the same time we have to recognise that in our society, which is so richly and variously endowed, there will be fields that are relevant to developing countries' needs and there will be restrictions on the supply side when UK aid money perhaps would involve us, if we were to go down that path, in making some wrong choices. One has to be very careful the scientific developments we might want to pass on are not going to mislead. The way in which we try to avoid this happening is to make sure we begin with the assessment of the needs of individual developing countries. We then put forward a programme with clear development objectives to meet the needs. We then try to match those with British capacity to put that into action. It may not be totally British, but predominantly it would be so.

Lord Thurlow

860. The World Bank representative in Accra, who struck us as being a very good chap, in summing up at the end of a very interesting hour that we had with him made the sort of philosophical observation that in the African context where population and food enters into so much in the long term the basic key to possible solutions lies in education. I quite see that from the point of view of bilateral donors it is a very difficult field to get into in a serious way because it is a very large one and involves foreign exchange and so on. Do you see any way by which the donor community generally can progressively make an increasing contribution to this fiendish problem in Africa?

(Mrs Chalker) As I said earlier, my Lord Chairman, I think education is absolutely key to answering a whole lot of the other development problems. When speaking of population before I mentioned two good examples where extending secondary education has helped the whole arrangements of families and local societies, that is, in Zimbabwe and Thailand. The most we can hope to do is encourage governments of the recipient countries to put education high on their agenda too. We cannot do it without them. We have to have their active

22 November 1989]

The Right Hon LYNDAL CHALKER, MP, Mr R M AINSCOW,
Mr A J BENNETT and Mr V HEARD

[Continued

[Lord Thurlow *Contd*]

support, their willingness to allow their teachers to be trained, with which we can help; and to make sure that in very rural areas families recognise, even though mother and father may not be educated in any way, the importance of letting children go to formal school rather than be the herdsman and those who literally keep the rest of the family going. There is therefore a big persuasion job to be done by the governments of those countries with particularly the rural communities. It is easier with the urban communities to persuade some of them to go into education, but nowhere is this more necessary than the countries with very high population growth. One has to mention here in Africa, Kenya and Nigeria

particularly, whose growth is very worrying given the over-usage already of existing natural resources. A big education job is needed and we shall be helping them do it, but we have to gain their active encouragement to their own people.

Chairman] Minister, thank you very much for answering all our questions so comprehensively and constructively. If I may say so, it has been the most delightful meeting and I think very encouraging and helpful to us in compiling our report, which we are in the process of doing. We hope to publish it in the new year. Then no doubt there will be a debate later in the spring. Thank you very much for the time you have spent with us, for which we are most grateful.

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WRITTEN EVIDENCE

Letter from the African Regional Centre for Technology

Thank you very much for your letter dated 26 January 1989 regarding the House of Lords Select Committee on Science and Technology established to "consider the United Kingdom's scientific and technical aid to developing countries".

From my own personal observations, the United Kingdom's assistance to Africa has so far been largely restricted to those countries which are members of the Commonwealth. In that context, the CSC, the ODA, the British Council and the Association of Commonwealth Universities have played a significant role. However, some of these organisations have recently extended their field of activities to a wider spectrum of African countries. The organisation of a seminar on the "Commercialisation and Evaluation of Research & Development Results" jointly by the CSC, the ARCT and the Nigerian Government from 24 to 28 April 1989, in Lagos, Nigeria, and the imminent signing of a co-operation agreement between the CSC and the ARCT, will certainly lead to closer collaboration in science and technology between the United Kingdom and Africa.

A number of projects funded by the British institutions have been in the field of energy, which is one of the priority areas for the African continent. However, in many cases, the specificities of the countries have not been taken into account, with the result that these projects did not meet with the expected success. If called upon, the African Regional Centre for Technology can play a major role in future on the identification of priorities as well as on the monitoring and evaluation of projects.

I wish to take this opportunity to thank you for your interest in the African Regional Centre for Technology and hope to hear from you soon.

Dr D Babatunde Thomas
Executive Director
21 February 1989

Supplementary Memorandum by Agricultural and Food Research Council

1. The AFRC welcomes the opportunity to submit supplementary comments specifically in respect to the ODA Strategy Plan and relations between AFRC, ODNRI and ODA.

2. The ODA Strategy Plan (A Strategy for Research in Renewable Natural Resources) presents ODA's long term objectives, its priorities for R&D in relation to less developed countries (LDCs) and changes in the methods of management to implement the Strategy Plan.

3. ODA has formulated a strategy plan which has six aims:

3.1 To determine the direction of funding of research most likely to contribute to developing countries.

3.2 To concentrate ODA research effort for greater effect.

3.3 To improve the management of ODA research programmes.

3.4 To build on and maintain the advantages and relative strengths of UK research institutions.

3.5 To provide ODNRI with a basis for developing its own corporate plan.

3.6 To bring about a wider awareness of the UK scientific community of ODA's stance in research.

4. The AFRC welcomes the clear statement of objectives and anticipates constructive interaction with ODA on objectives 2, 3, 4 and 6 and with ODNRI on 5.

5. AFRC would wish to make some general comments, to identify particular scientific strengths, and make some specific recommendations.

6. ODA's identified priorities, projected scale of activities and anticipated levels of funding do not equate with the magnitude of the tasks and the pressing need to harness the science of the first world in addressing the agricultural and food problems of the third world.

7. Further prioritisation, however difficult, should be undertaken by ODA. To utilise and exploit the considerable scientific expertise within AFRC Research Institutes and University based groups, and to match the UK scientific strengths to a revised list of priorities, joint ODA, ODNRI and AFRC discussions have been arranged. We suggest an annual review of our joint interests.

8. 8.1 Appropriate solutions to third world problems are best tackled most effectively by the integration of UK (and international), and indigenous resources.

8.2 There is considerable relevant expertise in AFRC Research Institutes and University based groups which is not being utilised by ODA. There are many international contacts, exchanges, etc. between AFRC staff and LDC centres not funded by or in conjunction with ODA. ODA is not fully making use of the expertise available in AFRC.

8.3 Within the UK, AFRC can:

8.3.1 underpin the applied expertise and resources of ODNRI and ODA, providing new scientific initiatives across the range of agricultural, biological and environmental sciences. The AFRC science base is available;

8.3.2 assist in the planning and management of R&D overseas;

8.3.3 be the UK base in linked partnership projects, perhaps through the more extensive use of formal memoranda of agreement, for training, the development and application of research techniques, technology transfer and assistance in the development of research organisations;

8.3.4 be a principal route, in conjunction with the ODA, UK Universities and the British Council, through which overseas research workers may be trained.

8.4 A sustained contribution can best be made by AFRC scientists through Partnership Schemes (laboratory to laboratory, Institute to Institute, University to University). Specific research projects can be "serviced" and supported from the UK end, calling on, and using the many "services" available within AFRC Institutes (eg specialised expertise and equipment, computing, statistical and library facilities). Scientific momentum can be maintained and the resolution of research projects achieved through regular and frequent exchange and interchange of scientists and technicians on specific research projects with Partnership or Link Schemes.

9. The move towards project rather than core funding and the appointment of Programme managers will require closer collaboration between AFRC, other UK institutions, ODA and ODNRI. It is to be hoped that the predominance of ODNRI staff appointed as Programme Managers will not result in progressive development and expansion of ODNRI facilities, when equivalent facilities and expertise is available in other research and university establishments in the UK. Greater cohesion is possible and the necessary facilities, commitment and goodwill is available in AFRC.

10. DES should be encouraged to recognise, and support financially the educational and training functions of AFRC Institutes and University based groups in relation to LDCs.

11. GENERAL COMMENTS

11.1 *Funding*

The level of R&D funding provided is insufficient relative to the works required.

11.2 *Priorities*

There are too many priorities. The number, realistic to funding levels and effectiveness, needs to be reduced. The efficacy of greater partnership with the AFRC science base in Universities and Institutes could be explored.

11.3 *Imbalance*

There is an imbalance in the total programme, with insufficient emphasis given to animal research and in particular to animal health research.

11.4 *Crops*

Within crop and plant sciences the predominance of work on maize and rice may be questioned; a higher priority for sorghum and millet may be more appropriate.

11.5 *Integration*

An integrated approach should include an appropriate level of resources, and a higher priority should be given to technology transfer.

11.6 *Quarantine*

The issue of quarantine is an important UK advantage which permits crop plant germplasm to be freely imported into the UK for experimental use. There is no comment in the Strategy Plan on this issue.

11.7 *Environmental Tolerance of Crop Plants*

This important area justifies a priority ranking to exploit options opened through new breeding techniques.

12. SPECIFIC POINTS

12.1 *Breeding Technologies*

There is considerable scope for the application of new breeding technologies in relation to animals in LDCs. Both research and training capacities are available in AFRC.

12.2 *Animal Health*

There are major problems of concern in LDCs, and ODNRI does not possess inhouse expertise. ODA could utilise the available UK expertise. The AFRC Institute of Animal Health would be pleased to serve as an agency for ODA in infectious viral diseases.

12.3 *Crop Residues*

The expertise at AFRC institutes can effectively underpin the applied work at ODNRI on the nutrition of animals and the utilisation of crop residues.

12.4 *Environmental Tolerance*

AFRC scientists can make a major contribution to crop environmental tolerance, particularly for sorghum and millet.

12.5 *Crop Protection*

AFRC scientists could provide basic biological and physical science underpinning this vital area. We have expertise in both biological and chemical systems.

12.6 *Crop Physiology and Plant Breeding*

ODA have approached AFRC to be Programme Managers for a research programme in this area. We are glad to form this partnership and would welcome others.

12.7 *Crop Drying, Storage and Pest Harvest Technology*

The reduction in ODNRI interests in this area could be balanced with AFRC expertise.

12.8 *Tillage and Water Harvesting and Conservation*

This key area would be developed further on a UK basis.

12.9 *Power: Human, Animal and Mechanised*

There is considerable scope to develop further programmes in this area.

13. CONCLUSION

Major organisational changes have taken place within AFRC, ODA and ODNRI. The publication of the AFRC Corporate Plan (1989–94), the ODNRI Annual Report (1988), and ODA Strategy Plan underline the areas of common interest relevant to the needs of the LDCs. There are many new opportunities emerging from the biological sciences which would be harnessed through a closer partnership between AFRC, ODA and ODNRI:

- to capitalise on the strengths of the AFRC science base;
- to provide improved training programmes;
- to develop integrated and sustained programmes which utilise the complementary expertise and skills within AFRC, ODA and ODNRI.

New initiatives have been taken and recommendations made to develop a coherent programme within the relevant organisations to contribute to the requirements of the less developed countries.

October 1989

Memorandum by the All-Party Parliamentary Group on Population and Development

Introduction

The all-party group on population and development was established 10 years ago. It acts as a pressure group and consciousness-raiser in both Houses of Parliament on population and related issues and its activities include holding open meetings for Parliamentarians, briefings, contributions to debates, engaging in dialogue with relevant organisations and fact-finding overseas tours for group members. Group chairman is Hon Sir Charles Morrison MP, and the President and founder chairman is Rt Hon Lord Houghton of Sowerby CH.

Background

"In 1800 the population of the world was about one billion people. It took 135 years, that is until 1930, for the population to double to two billion. It then took only 30 years, that is until 1960, to add another billion. Twenty years later it had reached four billion. In other words, the population had doubled again in just over 50 years. By 1987 it had reached five billion, and it is still growing at 1.7 per cent a year and it is expected to reach six billion by the end of the century". HRH The Duke of Edinburgh, 1989 Richard Dimbleby Lecture "Living Off the Land", published in *The Listener*, 9 March 1989.

"I think most of you know that I have been involved with the movement to make people aware of the damage being done to the natural environment. The sad thing is that most of the damage has been the result of human activities undertaken with the best possible intentions ... all these developments together allowed the human population of the world to double in the last 60 years, and in some cases to treble in the last 30 years. ... I hope that it is now slowly beginning to dawn on people that, in countries with a high birth-rate, the rate of economic development cannot hope to keep up with the rate of population growth, let alone make any improvements possible". HRH The Duke of Edinburgh, speech to the Parliamentary and Scientific Committee, 1 March 1989.

These two quotations from HRH The Duke of Edinburgh highlight specific aspects of population growth: the speed at which it is happening and its destructive effect on economic development and the environment.

Most of this growth will take place in developing countries; the inbuilt momentum is already there with nearly 40 per cent of the population under the age of 15. The scale and effect of this growth is graphically illustrated in a city like Bombay, visited this January by six members of the group on a study tour of population, family planning and social development projects in India and Nepal, as guests of the Family Planning Associations of the two countries. Every day 1,500 individuals join the population of Bombay; every centimetre of space is used; humanity crowds on to the traffic islands, the pavements, wherever it can find a little space. At its present growth rate of 2.1 per cent India's population is set to double in about 33 years' time. Even in less obviously crowded developing countries, for example in Africa, it is the *speed* at which the population is growing which sabotages attempts to provide universal education, health, welfare and housing infrastructure. Kenya's population, on current trends, will double in 18 years; the populations of Zambia, Zimbabwe and Tanzania will double in 20 years. Nigeria, visited by six group members in January 1987, will take a quarter of a century for its numbers to double.

Such population movement, density and growth affects every aspect of development. In January 1988 the all-party group was pleased to sponsor a briefing pack for Parliamentarians published by Marie Stopes International which examined all the areas affected by population growth and change: land and food, health, environment, employment, cities, education, women's rights and the human right to family planning. Population growth touches the total spectrum of life: at the individual level the numbers and spacing of children are key factors in maternal and child health—currently the World Health Organisation (WHO) estimates that some half a million women die annually from pregnancy and pregnancy-related causes. The challenge of finding employment for growing numbers of young people means that developing countries will have to find almost 1,600 million new jobs between 1980 and 2025; some countries tackle job creation with success, others less so: in India open unemployment grew steadily from 2.6 million in 1966, to 9.6 million in 1976 and reached 27.5 million in 1986. Poverty of increasing numbers in the developing world drives them to cultivate marginal land, use trees for firewood and to graze land already showing signs of exhaustion. This contributes to environmental stress.

ODA Policy on Population and Family Planning Projects

Support for population activities started in the mid-1960s, with some assistance for training activities. In the early 1970s family planning aid was sharply increased and World Population Year in 1974 provided the opportunity for broadening the scope of population activities supported within the aid programme. Currently some £15 million of the £40 million annual expenditure of the ODA Health and Population Division is allocated to family planning, population and related assistance. This is double the 1981 figure. But assistance to population-related activities is only just over 1 per cent of the total gross public expenditure on overseas aid.

ODA policy on population and family planning assistance is set out fully in its publication *Second Report of Population Activities 1984* which states that the government "continues to acknowledge the importance of population programmes in the development process and to give them a high priority in the overseas aid programme". ODA believes that "population programmes should not operate in isolation from other development efforts, since the size, structure, rate of growth, distribution and movement of population all have fundamental effects on economic and social development". In March 1987, Chris Patten MP, the Minister for Overseas Development, expanded ODA's approach in his speech at Chatham House to the Royal Institute for International Affairs:

"We have decided to make primary health care the priority in our health and population programmes ... I am particularly attracted to those health projects which move laterally into literacy programmes. I am sure that there is a close linkage between female literacy rates in particular and effective health and population programmes."

And in the House of Commons debate on overseas development 17 March 1989 the Minister for Overseas Development, said "Direct poverty alleviation is an important element of any aid programme and helping countries to make the transition to lower population growth is a vital part of assisting them to achieve sustainable development ..." (*Hansard*, 17.3.1989, Cols. 688-89).

Method of Funding

As the attached table from ODA shows, population assistance is largely through multilateral than bilateral funding. Population is still a sensitive issue for many developing countries, which consequently find it easier to work through multilateral rather than the bilateral agencies. The three main international channels for population assistance are: UN Population Fund (UNFPA), 1989 grant £5.5 million; International Planned Parenthood Federation (IPPF), 1989 grant £6.75 million (including £0.5 million for the AIDS prevention programme); World Health Organisation (WHO) special programme on reproduction, 1989, grant £2.2 million.

A welcome innovation in provision of technical assistance at the country level is the appointment of a health and population adviser to each of the two ODA Development Divisions in Africa. The second of these two appointments was announced on 17 March by the Minister for Overseas Development (*Hansard*, 17.3.1989, Col. 699).

It is not only developing countries which find population and family planning a sensitive issue. Some of the major development NGOs in the UK share this difficulty and, as a result, family planning is not among their leading priorities. There are two British NGOs which deal exclusively with this area: Marie Stopes International and Population Concern; annual expenditure on overseas projects for both organisations is respectively £1 million and £500,000. Both organisations receive growing support from the ODA Joint Funding Scheme (1986-87: £78,000; 1988-89: £183,000; 1989-90: £279,930) which gives 100 per cent funding for family planning projects. This 100 per cent funding recognises the very severe difficulties experienced by NGOs in raising funds for overseas family planning/population projects, in contrast to the broader development issues, for example famine relief.

Issues around population and family planning do, as we have already pointed out, touch every aspect of life from the individual's decision on size of family to society's needs for education, housing and health provision and environmental protection. As the Prime Minister said at the Margaret Pyke Centre on 30 November 1988: "Whatever we can do in research, and we must do it, on the greenhouse effect or the ozone layer or population, it is not enough unless we tackle the population problem ...".

The personal arena of reproductive choice and family size can sometimes be more successfully handled by a non-governmental organisation, working either within the framework of a sympathetic Government policy or persuading and informing a Government of the need for a sympathetic policy. The history of the family planning movement in our own and other European countries demonstrates this clearly.

ODA supports Family Planning Associations (FPAs) throughout the world with its funding for the International Planned Parenthood Federation (IPPF), with its membership of FPAs in over 120 countries. Both the IPPF and the two British NGOs (Marie Stopes International and Population Concern) receive many more requests for help than they can meet. The experience of the UN Population Fund is the same. The advantage of the two British NGOs is that they are able to work very much at the grass-roots, as they are in touch with NGOs in developing countries and work as a partnership to set up projects. Marie Stopes International (MSI) has a policy of supporting individuals with a proven track record of running maternal and child health, family planning and allied projects. But much more needs to be done.

In May 1988 the staff of the ODA Health and Population Division held a briefing for members of the all-party group on population and development. This was a most interesting and informative session, when senior staff explained the process of identifying and establishing projects and the constraints on project development. It was pointed out that project development was slow and time was needed for monitoring and evaluation. We were told that the World Bank allowed twice as much time for health and population projects. It was at this meeting that we learned of the imminent appointment of the first health and population adviser to the ODA Development Division in Lilonge, Malawi.

Priorities in Population/Family Planning Projects

The disturbingly high number of maternal and infant deaths and high incidence of ill-health for women and their families is a major focus of concern; in 1987 two international meetings ("Safe Motherhood" and "Better health for women and children through family planning") demonstrated the contribution that family planning makes to health by helping women to delay, plan and space their pregnancies. As an example of the disparity between maternal death in a developing and a developed country is the estimate that in India more women die from pregnancy in one week than do in Europe in a whole year. And the World Health Organisation has described the annual death toll of 500,000 women as the equivalent of a jumbo jet crash every six hours, day in, day out. This is, rightly, a major emphasis in family planning programmes.

While the major thrust of any effective family planning programme must be on the benefits for the individual woman and her family, the impact of a reduction in family size is relevant to the wider needs

of society. It is for this reason that the integration of family planning services into all relevant health and social development programmes is essential. While in Nepal in January this year, the six representatives of the all party group on population and development visited parasite control, female literacy and employment and tree-planting projects, which formed a coherent whole, into which slotted family planning services.

The environmental aspect of population pressure is receiving increasing attention and we would like to emphasise that when specific environmental programmes are being considered, a broad-brush approach be taken which includes an examination of appropriate family planning provision. As Chris Patten MP, Minister for Overseas Development, said in his presentation "British Aid Policy and the Environment" at Cambridge on 28 February 1989: "Poverty and population pressure, which are increasing faster than people's ability to adapt systems of production, are very powerful causes of environmental degradation. It is no wonder that the symptoms of the degradation are so alarming".

How Well Does This Approach Work?

On the whole it would seem that the multilateral approach works well. The experience of our group members visiting countries with NGO projects was positive and the impression received of those NGOs (mainly FPAs) was that they were large, well organised and respected bodies.

However, while appreciating that the NGO approach can often for good reasons be the most appropriate, it is a matter for regret that the bilateral programme has not developed further. We recognise, of course, that it is up to Governments to ask for bilateral assistance, but staffing constraints at the ODA Health and Population Division and pressures and conflicting opinions at the geographical desk level may also have played a part and it is hoped that the appointment of health and population advisers at the two African Development Divisions may go some way to counteracting this. But it is important to recognise that the ODA input to the large bilateral programmes in Orissa, Kenya and Pakistan (in partnership with international organisations like the World Bank) is successful and could well be repeated with other countries.

The two approaches are not mutually exclusive; both have a part to play and in both parts there is room for expansion. It is also important to recognise that, although funding for population activities has increased significantly in the last five years and the present Minister, Chris Patten MP, has given imaginative and informed leadership in support of family planning and population projects, the funding given to this area is, stated earlier, only some 1 per cent of the total aid programme. Family planning/population projects are time-consuming to establish, but they are cost-effective. Evidence from the World Fertility Survey shows that family planning services are not reaching women who need and want them and that accessible family planning services will be used by women.

Recommendations

1. The percentage of aid given to family planning/population projects, currently slightly in excess of 1 per cent, should be increased to 2 per cent of the total aid programme.
2. This increased money should be given to both multilateral agencies (IPPF, WHO and UNFPA) and to encouraging bilateral programmes, for example by increasing expert staff and support teams at ODA Health and Population Division and strengthening the health and population advisory capacity in the Development Divisions overseas.
3. Support for the two British population NGOs from the Joint Funding Scheme should be further reviewed with a view to enabling these two small organisations to increase their capacity to meet more of the requests received from grassroots NGOs in developing countries.
4. The work of the British development NGOs receiving block grants from the Joint Funding Scheme should be reviewed in the light of their commitment to the integration of family planning services into health and social development projects.
5. The ODA environment team should be advised to include an examination of the availability of family planning/maternal and child health services in all proposals for environmental projects.

Hon Sir Charles Morrison MP, Chairman: on behalf of the all-party group on population and development
30 May 1989

ANNEX 1

UK AID FOR POPULATION ACTIVITIES—1976-86

	£ millions										
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Net official development assistance											
Total public expenditure on aid (gross)	490	638	763	1,016	797	1,081	1,028	1,061	1,061	1,150	1,193
Population aid disbursements	550	612	752	939	966	1,151	1,085	1,173	1,311	1,317	1,358
	4.0	5.5	7.3	9.2	7.6	6.5	10.0	12.4	12.3	15.5	15.1
Percentage of all UK aid on population activities taking "total public expenditure on aid (gross)" as denominator	0.7%	0.9%	1.0%	1.0%	0.8%	0.6%	0.9%	1.1%	0.9%	1.2%	1.1%

	£ thousands										
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Multilateral											
Bilateral	3,620	4,640	4,875	7,475	5,500	5,000	6,500	7,050	7,912	11,021	12,300
Institutional support ⁽¹⁾	276	548	2,223	1,328	1,540	1,000	2,810	4,559	3,541	3,745	2,027
Joint funding scheme	111	136	93	161	195	176	131	154	161	165	153
Research grants	— ⁽²⁾	87	87	47	96	90	110	137	92	131	70
Training awards	32	66	65	112	126	113	172	155	270	88	180
Administration ⁽³⁾	NA	NA	NA	51	87	81	75	121	141	147	248
	NA	NA	NA	NA	NA	NA	137	185	204	204	164
Other	— ⁽²⁾	11	4	12	45	8	16	12	12	8	9
	4,039	5,488	7,347	9,186	7,589	6,468	9,951	12,373	12,333	15,509	15,151

(1) Includes population Bureau expenditure 1976-81, the equivalent expenditure is included under administration costs in 1982 *et seq.*

(2) No comparable breakdown available; £141,000 disbursed between these two categories.

(3) New category 1982.

1987 expenditure not yet available but our contributions to the multilateral organisations appear at Annex 2.

Memorandum by the Association of the British Pharmaceutical Industry

Introduction

1. The Association of the British Pharmaceutical Industry represents the common interest of some 120 member companies in the United Kingdom. Most are research-based companies, whose business is the discovery, development and marketing of new medicines, but the Association also represents UK-based companies whose business is the quality production and supply of established products which are no longer covered by the originator's patent (ie generics).

2. Some 70 of the members are concerned with exports, and some may supply their medicines through trading intermediaries or agencies based in this country. Exports of medicines to developing countries of Africa, Asia and Latin America account for an estimated 20 per cent of the industry's 1988 exports of £1,735 million.

Operational Transfer of British Technology

3. The most significant form of overseas development aid as far as the pharmaceutical manufacturers are concerned is provided through investment in local production facilities, and the consequent transfer of technology and the training of nationals of developing countries.

4. ABPI member companies have subsidiary or joint venture manufacturing operations in 44 developing countries. Fifteen of these countries are in Africa, 13 in the Americas and 16 in the Middle East and Asia. These companies between them operate 85 manufacturing subsidiaries and provide local employment with the creation of upwards of 30,000 jobs. In addition, over 83 manufacturing operations are run as joint ventures with local companies.

5. In all these production operations, companies aim to ensure that the same high standards of Good Manufacturing Practice which apply in the UK are reproduced in the developing world.

6. In purely practical terms, the establishment of an overseas manufacturing operation in a developing country requires substantial initial and continuing two-way staff training in the broadest sense. To harmonise standards of management with those of the United Kingdom—whether they be administrative, financial, technical and/or marketing—presents a constant challenge. The provision of capital investment, training and transfer of technology develops the industrial base, providing good employment and ensuring the production of safe, cost-effective medicines appropriate to local needs.

The World Health Organisation

7. The Association, along with the industry's international federation, is generally supportive of those WHO initiatives which have the overall objective of improving the supply and quality of medicines to the underserved populations in the developing world. These programmes include the WHO Action Programme on Essential Drugs and, importantly, the WHO Certification Scheme on the Quality of Pharmaceutical Products moving in International Commerce.

8. The Certification Scheme should be more widely used by developing countries. The wide-spread problem of sub-standard and counterfeit medicines, especially in developing countries, is one that has plagued the genuine UK industry for many years. It is particularly insidious because it endangers patients and destroys confidence in reputable medicines of UK manufacture.

Practical Initiatives to Benefit Developing Countries

9. As a collective body, the six UK-owned research-based member companies of the British Pharma Group (Beecham, Boots, Fisons, Glaxo, ICI and Wellcome) continue to provide practical assistance in support of the World Health Organisation's Action Programme on Essential Drugs.

10. There is no lack of production capacity of basic medicines of good quality, including manufacture in developing countries themselves. The greater part of the population has to depend for primary health care on government health services and crucial problems are the ineffective capacity of the public sector to procure, store and deliver basic medicines to those who need them. It is in this area that the pharmaceutical industry has practical expertise to contribute.

11. The British industry's programme began as a national initiative in 1984 when the companies offered their expertise and an initial funding of over £250,000, to undertake practical projects with the aim of demonstrating ways of improving the distribution and use of basic medicines. After considerable research and during the period 1985–88, two principal projects were started in Eastern Africa and the Maldives. In addition, a series of smaller initiatives were undertaken in other countries. Fuller details of these are described in the ABPI publication "Medicines for the Developing Countries" which was published for the 1988 World Health Assembly.

12. Further funding of a similar order was made available in 1988 to continue with these projects and to explore the possibilities for newer initiatives elsewhere and in other developing countries. Several are currently under evaluation in terms of need and practicality.

13. The Association has worked closely with certain specialist agencies operating overseas, for example UNICEF, AMREF, VSO and The Commonwealth Secretariat.

Training of Personnel from Governments of Developing Countries

14. The ABPI is involved also with wider international initiatives of the pharmaceutical industry. Under a joint arrangement with the International Federation of Pharmaceutical Manufacturers Associations (IFPMA); and WHO, offers of training in quality control of medicines are made to nationals of developing countries working in government control laboratories and inspection services. The training is given in the analytical laboratories of ABPI member companies. Each candidate follows a programme individually developed to his/her needs which covers chemical, microbiological and biological control, and lasts from three to six months.

15. Under the scheme, the industry has to respond to applications received through the WHO. Out of the 62 candidates who have completed such a programme, 25 per cent (15 people) were received in the laboratories of ABPI member companies (a total of only 89 applications has so far been received by the IFPMA via WHO). Courses have been completed successfully by trainees from Bangladesh, China, Indonesia, Lesotho, Tanzania and Zambia.

Arrangements are in hand to receive others from Thailand. In addition to organising courses in the United Kingdom, the industry is exploring other means to assist the developing countries to organise individual and group training schemes themselves.

These will enable technicians from the public sector to develop the necessary skills to monitor the quality of the medicines for which they are responsible. Where governments have already started programmes of quality control, assistance will be given, where necessary, through provision of equipment and expertise to national laboratories, to help them achieve the standards recommended by the WHO.

British Aid Programmes

16. Although a private sector industry which has to generate its own funds for investment in research for new medicines, the pharmaceutical industry cannot but be concerned at the lack of access to basic medicines of large sectors of the population of developing countries.

17. We understand and would accept the general philosophy that development aid should be directed to projects which provide infrastructure investment and training, and that the aim is that recurrent costs of health services should be sustainable by the people themselves and their national government. In this respect, medicines tend to be regarded as consumables rather than capital expenditure and their provision overlooked in projects for hospitals, clinics and rural health posts.

18. As a British industry operating in an international environment, we cannot fail to compare the activities of the Overseas Development Administration in the area of medicines with some of its counterparts from other countries. In particular, the Danish, Swedish and Netherlands development agencies, whose countries have much less important pharmaceutical industries, have major programmes of bilateral aid directed to provision of essential drugs, whereas we understand that this is not one of the ODA's priority areas for bilateral aid.

19. On the multilateral front, the ODA is one of the major contributors to the central budget of the WHO Action Programme on Essential Drugs—in 1988, we understand, to the extent of £500,000. However, the ODA has declined, as a matter of principle, the Association's suggestion that this contribution should be specifically targeted to a sub-programme which is linked to the British industry's particular expertise in support of the Programme.

20. Our members have noted an increasing tendency where the ODA has granted general programme aid, for the recipient government to decide to spend some of those funds on medicines. While recognising that the initiative in this respect lies with the national government concerned and not with the ODA, we have found it surprisingly difficult to identify such cases in good time for British-based companies to tender for the supplies, and even to obtain historical statistics on total aid expenditure on medicines. We would advocate improved information procedures in the ODA in this regard.

Quality Requirements of British Manufactured Medicines Supplied as Aid

21. The Association's member companies are naturally important suppliers of those medicines which are provided under government aid programmes and also those programmes of non-governmental aid agencies.

22. The products of the British companies, unlike those of many UK-based import/export agencies, are manufactured in the UK, in properly licensed premises, to internationally recognised standards of quality. However, to the obvious detriment of the UK manufacturing industry, it is quite legitimate for UK traders to import possibly inferior medicines into this country and, provided that they are not sold here or transformed in any way, then re-export them bearing the name of the UK trading house—without a UK product license and apparently as of British origin.

There are worrying indications that these inferior medicines also may become channelled through UK aid programmes.

Conclusion

23. The Association of the British Pharmaceutical Industry, with our member companies, recognises its ability to aid developing countries, particularly with training and supply of expertise in the use, storage and distribution of medicines, and has established an on-going programme of assistance to health-care bodies, in addition to capital investment in local production.

30 April 1989

Memorandum by the BBC World Service

The BBC World Service broadcasts for 777 hours a week to a regular (at least once a week) global audience of 120 million in 37 languages.

A significant part of this output is designed to be of use to those living in the developing world.

World Service broadcasts to the developing sector in the following languages as well as English:

<i>Africa and the Middle East</i>	<i>Asia</i>
Arabic	Bengali
French	Burmese
Hausa	Cantonese
Portuguese	Mandarin
Somali	Hindi
Swahili	Indonesian
	Malay
	Nepali
<i>Latin America</i>	Pashto
Portuguese	Persian
Spanish	Tamil
	Thai
	Turkish
	Urdu
	Vietnamese

ENGLISH TEACHING

A basic requirement for the acquisition of knowledge is, of course, the ability to understand what is being communicated. Much of educational and scientific material is published in English, even when originated in countries where English is not the first language.

The World Service aims to enable individuals abroad to acquire skill in the use of English from the basic to a range of specific specialist forms of the language.

BBC TOPICAL TAPES

BBC Topical Tapes are weekly programmes in English made for local use by radio stations around the world. Nine tapes are produced weekly, two monthly; they are designed for immediate use.

The material is original, obtained through the world-wide resources of the BBC and offers stations a wide range of interviews, magazines, features and discussions covering international affairs and finance, books, science, health development techniques, social themes and personalities.

Topical Tapes can be scheduled complete at 15 or 30 minutes or can be excerpted to provide material for a station's own productions. Publicity is provided with all tapes and some programmes include full scripts and trailers. The station keeps the tape but Copyright resides with the BBC.

Programmes specially useful for developing countries are:

BBC Science Magazine

From the world of science, interviews about new discoveries and developments in original research and about the personalities and politics of science. It is designed for scientists, students and laypeople everywhere who enjoy the exposition of scientific ideas from many disciplines. A full script is supplied with every tape. Duration: 28 min 30 sec.

Health Watch

A monthly miscellany of interviews and features about preventive medicine, first-aid tips and the latest information on new treatments, drugs, surgery and medical equipment. Duration: 14 min.

Hello Tomorrow

A fast-moving magazine for listeners in a developing world, designed to appeal to specialist and general audiences alike. Week by week it reports from around the world on new research and techniques in land-uses, food production, public health, administration, housing and many other ways in which people are improving their quality of life. A full script is supplied with every tape. Duration: 28 min 30 sec.

The World of Books

A wide-ranging magazine covering all aspects of the world of books, writers and publishing. As well as discussing with their authors the creative techniques of writing novels, plays and poetry, the programme examines non-fiction works, books on simple science and medicine, text-books, teach-yourself books with reference for the home, schools and libraries.

A special emphasis is placed on books available world-wide, especially in paperback. Duration: 28 min 30 sec.

WORLD SERVICE IN ENGLISH

Programmes broadcast directly on the BBC global English network are:

"The Farming World"

Weekly. A survey of the latest techniques and methods in agriculture, with special emphasis on the conditions in, and needs of, the developing world. Interviews with leading international figures in agriculture are a central feature of the programme. Duration 20 min.

"Development '89"

Weekly. The programme reflects the successes (and failures) in projects in the developing sector. It examines the issues involved in Aid, government participation and the relationships between donor and recipient. Duration 30 min.

"Tech Talk"

Weekly. Exposes engineering methods and practices to the listening public. Ranging from 'high tech' (how a satellite is built and launched) to basic know-how about water-purification. 'Alternative technology' (solar power for hospitals in the Third World). Duration: 15 min.

"Science in Action"

Weekly. The practical uses of scientific discovery and their relationship to the needs of mankind in the world today. Duration: 30 min.

REGIONAL OUTPUT

In addition there are particular programmes for specific areas of the world, ie

- "Caribbean Report",
- "Focus on Africa",
- "Network Africa",
- "South Asia Survey".

Memorandum by the British Association for the Advancement of Science

The aims of the British Association are to enhance public understanding and awareness of science and technology, and their impact on society; and to increase public support for science and technology, and defend their interests.

These needs are common to all countries, and these aims are shared by many sister Associations with whom the British Association has strong and long-standing links, particularly in the Commonwealth but also in the United States and Latin America, in the Soviet Union and Eastern Europe, and in China.

A strong and confident scientific community is a major asset to any country. We strongly endorse the view of the British Council that the establishment of a self sustaining community of indigenous professionals in important scientific fields is vital for developing countries. More should be done to help the development of such communities, through support for indigenous scientific societies and regional associations.

More thought needs to be given to the role this country can and should play in training scientists from abroad. Effort should be made to ensure that PhD and Postdoctoral research undertaken here is providing experience which will be valuable on return. This might include, for example, training in basic equipment maintenance and repair. Types of research which are irrelevant, and often inaccessible, to developing countries, should be avoided.

To grow and prosper, any community of scientists needs access to the scientific literature, and opportunities for contact with scientists in other countries—participation in conferences, short term and longer visits to other laboratories. Science is an international activity, and scientists from developing countries must have access to it even though this can be expensive.

An indigenous corps of scientists and technologists is a necessary but not sufficient requirement for successful development. Some understanding of science must permeate through the whole of the society. Without adequate numbers of competent technicians, equipment soon falls idle. Without a basic level of understanding amongst the general population, even the simplest technologies can be worthless.

Many of the challenges in enhancing public understanding of science and technology are common to all countries, whatever their level of development. In this country for example, much of the work of the British Association is to involve young people, especially schoolchildren, in science and technology. This has parallels in the work of many of our sister Associations, and the sharing of experiences and knowledge, in organising science clubs for young people and stimulating project work, has proved to be particularly valuable.

In a different area, we have been particularly impressed by the work of CAST, our sister association in China, to ensure that basic equipment, chemicals and advice are available to farmers in all townships throughout China. This extensive programme is helping to revitalise Chinese agriculture and might well have lessons for other countries.

We have been associated with a number of initiatives to try to stimulate such links. At our 1984 Annual Meeting, a major conference was held jointly with the Royal Society of Chemistry, and to mark the 50th anniversary of the British Council on Chemistry and Developing Countries, with 130 participants including 70 representatives from over 25 developing countries. Other similar conferences have been organised by the American Association for the Advancement of Science, and by the Commonwealth Science Council. In addition, a meeting will be held later this year to seek to form an International Association for the Advancement of Science.

Public understanding of science should be an important ingredient of any aid programme. This should include relatively specialised programmes, such as the training of technicians, through support for science education in schools to programmes aimed at other groups—industrialists, parliamentarians, and members of the general public. Links between organisations involved in this work throughout the world, and exchanging ideas, can be a valuable and highly cost-effective form of aid.

On the question of trends in UK policy, we would only note that research Councils and universities are concentrating increasingly on research relevant to UK Limited. This is in part a response to external pressures, particularly from government. One likely consequence of this is that research in this country is likely to become less concerned with the problems of developing countries than in the past, unless they can be directly financed as part of the aid programme.

Overall, the aim of overseas aid is the promotion of sustainable economic and social development and alleviation of poverty in developing countries. But giving aid also brings benefits to the donor—developing and extending friendly relations with other countries, broadening the possibilities for trade and opening up new markets. These benefits are wholly compatible with the primary purpose of aid.

30 March 1989

Memorandum by the British Consultants Bureau

Introduction

1. British consultants have a significant involvement in the United Kingdom's scientific and technical aid to developing countries, under both bilateral and multilateral programmes.
2. There is a very high regard internationally for the effectiveness of the United Kingdom's bilateral aid programme which is being taken by other countries, including Japan, as a role model.
3. Within this overall framework, British Consultants Bureau has, in the past, criticised some aspects of the operation of the United Kingdom's aid programme, eg in the memorandum published as an appendix to the second report on the study by the House of Commons Foreign Affairs Committee on "Bilateral Aid: Country Programmes" (BCP/10) published on 25 June 1987.

Detailed Comments

4. In general, the comments made in the above memorandum are still valid, and in particular those related to Multilateral v Bilateral Aid, although some progress has been made on others.
5. Members of the Bureau were invited to make contributions to the written evidence to be submitted in response to the invitation dated 26 January 1989 and the following are appended [*not printed*]:
 - (a) Memorandum M30AO from British Telconsult,

- (b) Letter dated 17 February 1989 from Hunting Technical Services Limited,
- (c) Letter dated 6 March 1989 from J E Mitchell of Rendel, Palmer and Tritton.

Conclusion

6. BCB would welcome the opportunity to expand on any of the points contained in the attached documents [*not printed*].

3 April 1989

Letter from the British Council

I am pleased to pass on the following comments from Ivor Kemp, Director, Book Promotion Department:

“There is undoubtedly a very serious shortage of books and journals in most developing countries, a shortage that may be described—as it often has been in the past—as a books famine.

The World Bank’s ‘Textbooks in the Developing World’, 1989 (p 2), indicates that the ‘gap in educational spending between the world’s richest and poorest countries has widened. In 1960, OECD countries spent 14 times more on each of their elementary school students than did the world’s poorest countries. By 1970, however, that gap had grown to 22 times more. And because of the fiscal crisis between 1970 and 1980, the gap became a gulf, increasing to 50 times.... Reductions have largely been imposed on that category of the education budget—non-salary expenditures—which cannot as easily defend its interests: money for chalk, maps, furniture, library equipment and textbooks.’ Pages 4–5 of this publication show relative expenditure on classroom materials, the production rates of books, and primary school science achievement in a range of countries and regions.

In the university sector the University Librarian of Jos—addressing the International Federation of Library Associations in August 1989—noted that ‘the generalisation that Third World university libraries are currently perched on the precipice would not be far-fetched. In fact, one could go a step further to state that the necessary factors for the declaration of a library state of emergency are in place in our universities.’

A publishing view is given in the paper ‘The Hunger for Books’ presented at the International Publishers Association Congress in London in 1988 [*not printed*]. It notes that ‘dozens of examples could be produced from a wide range of countries in Africa, the Caribbean, Latin America and East and South Asia to demonstrate the fact of book hunger which in many cases becomes actual book starvation’. An article in the British Council’s British Book News July 1989 by Ivor Kemp [*not printed*] addresses the problem of the chronic lack of books and information in developing countries: ‘The supply of books and other information materials for the industrialised countries is inadequate, the capacity to produce materials locally is limited and there are shortages of trained staff, of library accommodation and equipment.

In short it is not only in Nigeria and Ghana that there are acute shortages of books and journals. Though the situation throughout much of Africa is particularly disastrous there are serious problems in much of Asia, Latin America and the Caribbean.

As ‘The Hunger for Books’ paper suggests, however, the extent of the problem on a global or regional basis has not been established. It is great, but not precisely quantified.

The Book Presentation Programme (which is administered for ODA by the British Council and which stands currently at approximately £4 million per annum) identifies key institutions and their most pressing needs. It cannot of course meet more than a proportion of those needs and does not extend to the provision of journals, though it does permit access to the photocopying service of the British Library, which supplies copies of journal articles within the copyright legislation.

An expansion of book presentation work would be very desirable. It should be noted, however, that ODA is reviewing its books aid programmes and it is expected that the Book Presentation Programme will be developed into a more flexible form to permit the funding of books and libraries projects, possibly very large ones, relevant to country needs and developmental objectives.

This chimes well with the Book Sector Study approach to book development which the British Council and the Book Development Council have advocated and which has been taken up by the World Bank and ODA. The Book Sector Study (studies initially being conducted in Tanzania and Nigeria) aims to look at the integration of planning for library and information development with the provision of textbooks and supplementary materials. The development of indigenous publishing industries and the designing of appropriate, affordable and sustainable systems are essential ingredients of much planning. The studies are intended to provide a clear framework within which book and information needs can be defined and priorities set. Ensuing from the Nigeria book sector work it is proposed that, under the World Bank Higher Education I project, \$31 million should be allocated for book and

journal provision to universities, and other proposals for textbook and school library supply are being developed. Funding for more such studies would help governments and aid agencies, including ODA and the World Bank, to identify the key targets for book provision. It is clear that British aid could not meet all the book and information requirements of developing countries, nor should we, but through book sector planning UK can help accelerate the development of systems to alleviate the book famine."

Maria Wilnyckyj
External Relations Officer
Director-General's Department
9 October 1989

Memorandum by British Petroleum plc

This submission to the Committee is divided into three sections. The first contains brief responses to the questions asked by the Clerk in her letter of 24 February 1989. The second outlines the activities of BP Africa and BP Solar, two BP businesses specifically involved with, and having input, into the many dimensions of assistance to the developing world. Finally, the more general BP contribution to the provision of scientific and technical aid, for example in China and Venezuela, is described.

We hope this memorandum will assist the Committee in its deliberations.

SECTION 1—BP RESPONSE TO QUESTIONS

Q.1 The objectives of the United Kingdom's scientific and technical aid to developing countries, and how effectively those objectives are met.

British technical aid can make a real contribution to the economic development process of recipient countries by the export of British goods and services and by supporting the activities of British investors. It should not be forgotten that British investors can be an important source of technical expertise and that British aid programmes should take account of and support their activities.

Q.2 How priorities are identified and projects executed and evaluated.

In the process of selecting priorities, we would advocate closer collaboration on aid generally between British aid agencies, exporters and investors and less emphasis on recipient government projects which tend to be channelled through often inefficient public sectors. An increasing proportion of aid should be aimed at the private sector who should have access to the same type of support as do small businesses in UK enterprise schemes.

Q.3 Whether there are any discernible trends in United Kingdom policy and, if so, whether they are desirable.

We wholeheartedly support the trend of recent years towards programme aid; some of these programmes have been extremely cost effective, eg programmes to repair tractors and other unserviceable equipment. We would strongly advocate increased resources being allocated to projects aimed at rehabilitation of the economic infrastructure.

In cases where aid has to be repaid, then there is an important need to take careful account of the economics of the project. Helping to establish unviable projects merely increases the recipient country's debt burden.

Q.4 How well aid is adapted to the needs of the recipient countries.

We consider that aid is generally well adapted to the needs of recipient countries except that more effort is needed to deploy aid so as to build-up the role of the private sector, and the process of consultation should be more widespread.

Q.5 The respective merits of bilateral and multilateral funding of scientific and technical aid.

We are unable to comment on the respective merits of multilateral and bilateral aid. A useful measure of relative efficiency may be to compare ratios of costs to aid dispersal for the various aid agencies.

A factor in favour of bilateral arrangements is the very important aspect of able nationals of recipient countries receiving further education and training in the UK which can favourably influence them towards doing business with British companies when they come to occupy positions of responsibility.

SECTION 2—BP BUSINESS INVOLVEMENT IN OVERSEAS ASSISTANCE

(A) BP AFRICA LTD

1. BP Africa Limited was formed in 1982 and is responsible for the BP Group's downstream oil interests in Tropical Africa, Tunisia and Cyprus. It has shareholdings in companies which market 3.5 million tons per annum of petroleum products in 22 countries and which employ a total of 4,600 staff. It also holds minority shareholdings in six refining companies, and has interests, either directly or indirectly in over 70 companies. Overall, the BP Africa companies have a 25 per cent average share in their markets and are market leaders in East Africa.

The 22 countries in which we operate have a combined GNP of \$73 billion and a population of 173 million growing at an estimated 3 per cent.

2. *Strategy*

In view of the depressed economies and large unpredictable swings in profitability within the individual associates, we aim to maintain a wide geographic spread of profitable business interests with strong competitive positions in local markets.

Strong competitive positions derive from a policy of concentrating resources in the most profitable business sectors, and by developing business expertise through training and development of staff.

3. *Management and Organisation*

BP Africa's head office is organised both regionally (into three areas) and functionally with specialist units handling crude and products trading, lubricants trading, control and systems, and personnel.

Our shareholdings in the 22 marketing companies range from 20 per cent to 100 per cent. We are responsible for the management of 19 of these companies; in Ghana, Ivory Coast, Malawi, Tanzania and Zambia our fellow shareholders are government owned enterprises who can sometimes make conflicting demands in the areas of planning, management information, etc. and may have conflicting views with regard to dividend policy.

4. *Key Success Factors*

In overseeing our African Associates, we ensure that they aim for:

- (i) *efficiency*—by which we mean that not only must they operate profitably but also insist on safe working practices being adopted. To achieve this, enormous emphasis is given to training at all levels and to safety and security inspections;
- (ii) *integrity*—our perception is that corruption and dishonesty are one of the biggest barriers to progress in Africa, as elsewhere, and we insist that our Associates operate to the highest standards of integrity. To this end we attach great importance to the audit function;
- (iii) *appropriate technology*—foreign exchange is pitifully short in most of Africa and we ensure that it is used sensibly. Our aim is to use rugged and simple equipment capable of being maintained locally.

5. *Operating Problems*

BP Africa, like other members of the industry, is facing severe problems in maintaining the efficiency and safety of its oil distribution operations in some countries through lack of hard currency with which to purchase spare parts and replacement equipment. This situation not only threatens safety standards, eg aviation but is already seriously detrimental to the economies of these countries and the potential for further damage is considerable.

The damage can take a number of forms:

- (i) Disruption of petroleum supplies can badly affect crop harvesting and processing yields and such delays can further depress export earnings where there is a price penalty for delay. These problems can be caused by, for example, lack of serviceable vehicles or, more seriously, damage to a depot not adequately protected against operating hazards. Where a key region is dependent on a single depot, the potential for damage to the economy can be considerable.
- (ii) Preventable losses of gasoline alone by the industry in the BP Africa marketing area are conservatively estimated to be in excess of £16 million per annum. This estimate comprises only losses attributable to evaporation, leakage and spillage and not to theft.
- (iii) The Energy costs of distributing petroleum products are often unnecessarily high due to lack of serviceable equipment, such as rail tank cars, requiring other more costly methods of distribution to be used.

It is important that the nature of the problems and the adverse affect they have on the balance of trade of African countries is understood by Government so that our African affiliates can secure improved access to hard currency, eg from ODA sources, to be used for infrastructure maintenance purposes.

6. *Training*

BP Africa has set the training and development of indigenous staff as a major priority. Expatriate staff numbers have reduced considerably in the last five years as suitably trained local staff have been identified to replace them. Currently we employ only 19 expatriates in 22 countries.

Training was traditionally carried out in Europe where the different culture could create difficulties for the trainee or serve to demotivate him. Consequently, we have created a Regional Training Centre in Africa, principally in Zimbabwe, but with the possibility of staging courses in other territories. The Centre caters for African staff of all nationalities and offers technical and commercial courses (safety, operations, product knowledge, retail, loss control, finance and planning) and management skills taught in business schools in Europe and the USA, but adapted for African attitudes and practices. Key senior staff still attend BP Group courses in Europe, as do the technical and commercial managers, to attend seminars in their particular field.

Each Associate Company in Africa is responsible for creating and presenting a wide range of skills training programmes mainly for the use of their own staff but open to BP staff in adjacent territories, or to non-BP employees if appropriate and if such a mix benefits our own staff.

In addition to formal courses we train Africans on long secondments to other BP Group companies in Europe. Successful exchanges (cross-postings) between African territories are also organised. These provide training and development as well as a convenient manpower supply where no local recruit is available.

Safety training is given high priority. BP's International Safety Rating System provides a systematic approach to sound safety practice, and a philosophy of good housekeeping and efficiency which, as it develops, will help prevent serious accident and consequential financial loss and will improve the standard of performance and quality of life of all employees whilst protecting the community in general.

A summary of Petroleum Industry aid projects is attached as an Appendix.

(B) BP SOLAR

1. *Introduction*

BP Solar is a wholly owned subsidiary of The British Petroleum Company plc. BP Solar is engaged in the research, development, manufacture and marketing of photovoltaic (pv), solar electric, systems throughout the world.

In addition to its manufacturing plants and marketing operations in the UK, Spain and Australia, emphasis is placed upon markets in the developing world. BP Solar has established operations in East and Southern Africa, Pakistan, Thailand, Indonesia, Malaysia, Papua New Guinea, Sri Lanka, Saudi Arabia and Colombia.

2. *PV Systems and the Developing World*

The development of pv has now reached the stage where it is capable of providing small amounts of electrical power reliably and economically. Capital costs remain higher than competitive power sources, such as diesel generators, but when maintenance and running costs over the life of the installation are included in the calculation then pv is competitive.

Applications of pv in the developing world fall into the following broad sectors:

- (a) Communications, for remote site microwave and repeater stations.
- (b) Transport, for railway signalling and radio-telephone links, and for powering navigational beacons.
- (c) Health, for use in powering medical refrigerators for the cold chain, providing light, powering fans/air coolers, powering water pumps and water purification mechanisms.
- (d) Education, for lighting, water and providing power for educational aids such as VCRs.
- (e) Village lighting and water pumping.

3. *BP Solar and Development Finance*

Because of both the marketing focus of BP Solar and the applications of the technology, BP Solar is in close contact with the range of development agencies:

(i) *Non-governmental organisations*

Non-governmental organisations are currently one of BP Solar's most important customer groups. BP Solar provides lighting, fridge and pumping systems to a very broad range of British (SCF, OXFAM, Action Aid), European (Medecins sans Frontieres) and North American (Worldvision) agencies. In addition, BP Solar is providing a range of systems to the International Committee of the Red Cross.

(ii) *Bilaterals*

ODA continues to monitor and evaluate the technology. An ODA pilot water pumping system has recently been installed in Western Sudan. Its performance will be carefully measured over the next

two years and it is anticipated that this will provide the basis for a more widespread adoption of pv water pumping technology by ODA.

In addition, ODA has provided pv refrigeration systems to a number of NGOs. Their performance is being monitored and again it is the intention that these will provide the basis for a more general acceptance of this application of the technology by ODA.

The approach of ODA to the technology contrasts with that of their French, German and Italian counterparts. These bilateral agencies have gone beyond the pilot project assessment phase and are now including pv where appropriate in a number of their projects. This provides our European competitors with a valuable tied "home" market for their products.

BP Solar Australia works closely with the bilateral Australian aid agency and has very recently entered into an agreement to provide lighting for a village in Sri Lanka.

(iii) *Multilaterals*

UNICEF employs pv refrigeration extensively in its Expanded Programmes of Immunisation in Africa. We are a major supplier to UNICEF of pv refrigerators. The technology has also been taken up by the Pan American Health Organisation in South America.

The way in which solar refrigeration has been developed through close technical co-operation between WHO, UNICEF and the solar industry, is a good example of how commercial business and the development agencies can work effectively together to meet the needs of the developing world.

Other multilateral agencies, particularly the regional development banks and World Bank, continue to finance pv in telecommunication projects. The World Bank is also now taking up the technology in its health activities; it will purchase a large number of fridge systems for a health project in Indonesia.

The EEC is proposing a large water pumping project in the Sahel. Implementation is due to commence in 1989. This project includes the supply of 1,040 solar pumps, together with lighting systems and refrigerators. The Company has prequalified to supply to this project and welcomes this initiative, however it does present challenging logistical and managerial problems to all involved.

4. *BP Solar in the Developing World*

Because the terrestrial applications of pv are relatively recent developments of the technology, BP Solar places emphasis upon supporting installations in the market. This support includes:

- (a) the provision of training courses in the UK, in association with Reading University, targeted at BP employees, development agency personnel, technicians and administrators from the developing world;
- (b) the provision of training in the developing world, targeted at technicians and operators; in February 1989 BP Solar provided training to Ministry of Health technicians in Mozambique. (This course was held in association with the Save the Children Fund (UK) and UNICEF);
- (c) assistance with the installation of pv systems in the field;
- (d) because the Company is widely represented on the ground, accessible and prompt servicing and maintenance;
- (e) donations of systems to non-governmental organisations; most recently, support has been provided to Action Aid's education programmes in Nepal in the form of pv modules and a television to be used in conjunction with a video camera.

In addition, the technology, particularly the assembly of solar modules, lends itself to local manufacture. BP Solar has an assembly plant in Thailand and is currently constructing one in Saudi Arabia. Plans to install a similar plant in India are well advanced. Other potential locations are under consideration.

Because of BP Solar's policy to invest in the markets and establish a long term presence, BP Solar employs approximately 150 people with a broad range of technical, commercial and administrative skills.

Pv technology continues to be the focus for research and development. As one of the world's largest pv companies, BP Solar is in the forefront of this research and development activity. The research is concentrated in two main areas, the improvement of existing crystalline technology and the development of other potential materials such as cadmium telluride. This research is undertaken predominantly at the BP Group's research centre and at BP Solar's own development centre both at Sunbury-on-Thames. Complementary research activities are conducted in Australia and the US.

5. *Conclusion*

The developing world is an important market for BP Solar. Close contact with the development agencies is clearly a *sine qua non* to developing both the technology and these markets. In the past three years the use of pv by non-governmental agencies has grown significantly, although bilaterals, including ODA, are taking up the technology at a slower rate. This does place BP Solar at a disadvantage to other European and North American competitors.

The Company's emphasis on having an effective long term presence in the market translates into a commitment to employ and educate the local people in the technology and management of the business. As the market for pv grows, so too the numbers benefiting from this will be increased.

SECTION 3—BP'S PROVISION OF "SCIENTIFIC AND TECHNICAL AID" TO DEVELOPING COUNTRIES

(i) CHINA

In May 1983, BP Petroleum Development plus four other parties acquired five Petroleum Contracts for areas offshore China. Under those contracts the partnership agreed to undertake an extensive training programme for Chinese personnel (the agreed budget totalled \$3 million).

The initial phase of the training programme consisted of English language training, for which purpose Bell Education Trust of Cambridge were contracted to set up a training school in Guangzhou. During a six month period, Bell tested, and taught English to some 40 employees of the China National Offshore Oil Corporation. The purpose of this training was to improve fluency in spoken and written English and to impart to the trainees an appropriate technical vocabulary to enable them to benefit from later technical training.

The second phase consisted of technical (including commercial) training for some 30 trainees. This consisted of a mixture of on-the-job training (both in BP Petroleum Development's office in Guangzhou and overseas) and attendance at formal courses including those conducted in-house BP and by third parties.

This particular section of BP operations was completed in March 1987.

Subsequent petroleum contracts awarded to BP Petroleum Development have carried a contingent training obligation. The contracts have yet to reach the stage where further training would be initiated.

(ii) VENEZUELA

BP's first contact with Venezuela arose out of an interest in protein technology, attracted by the artificially low kerosene price. Although the collapse of the price of competing proteins (soya bean and fish meal), resulted in the protein scheme being dropped, appreciation of BP's technology was nonetheless achieved.

Contacts made during this early phase led Bariven (the overseas procurement affiliate of Petroleos de Venezuela SA) to seek BP Materials and contract services prior to establishing their own European purchasing office.

At the nationalisation of the Venezuelan oil industry in 1976, most middle management posts were filled by US expatriates, who returned to their parent companies leaving a technical weakness in the industry.

Thus, BP were well positioned to respond when PDVSA sought technical assistance to their nationalised oil industry in 1978.

The original BP Agreement with PDVSA came into effect on 1 May 1980. PDVSA, and its subsidiary companies, were given access to BP services and expertise on an "as requested basis".

The Agreement remained essentially unchanged until 1988. However, following devaluation in 1983 and the need to curb foreign currency expenditure, realisations declined. In 1985, following the withdrawal of Shell from Curacao, and the leasing of the refinery by PDVSA, the management company, Refineria Isla (Curacao) was added to those receiving services.

In 1987 Corpoven (one of PDVSA's operating companies) produced a revised Agreement. This incorporated the legislation relating to technology transfer enacted since 1980. This round of negotiations coincided with the transfer of the management of the TSA (Technical Services Agreement) from BP Engineering (BPE) to BP Venezuela.

Within the context of the main Agreement, BP Research International maintain a collaborative research agreement with the PDVSA research affiliate—Intevep. A product of this Agreement is the development of emulsion technology for heavy oils and the establishment of a joint venture—BP Bitcor—for the commercialisation of Venezuelan orimulsion.

Administration of the Agreement in Venezuela is assigned to Corpoven. From small beginnings, with the affiliates requesting 400 man hours of London-based professional assistance in the first year, the Agreement expanded to a peak of 13,200 man hours in 1984. Since then, it has declined steadily to last years figure of some 3,300 man hours.

In addition to London-based technical assistance, the Agreement provides for the secondment of BP staff to PDVSA organisations and for on-the-job training for Venezuelan staff within the BP organisation. The affiliates may nominate staff to attend BP courses. Cross-posting of young graduate staff, at no charge other than expenses, may take place.

In 1988, the total BP contribution in terms of technical assistance, secondment and training amounted to around 24,070 man hours.

During 1988 the gross income for services provided to PDVSA under the Agreement will amount to £1.9 million as compared with £2.9 million in 1987.

During the past year 22 members of the PDVSA affiliates staff have been on training assignments with BP in the areas of exploration, production, refinery operations, materials and personnel. Eighteen managers visited BP for the purposes of technical and managerial consultations.

Future Opportunities

It is hoped to maintain the overall level of activity under the TSA in 1989 in the face of a deteriorating economic situation and a further devaluation of the Bolivar.

The Protocol

BP Oil has recently entered into a Protocol under which two letters of intent have been signed for two joint ventures with PDVSA subsidiaries.

COMMENT

Technical Service Agreements have been entered into as part of the contractual agreement for utilisation of the petroleum resources within certain countries. Current philosophy within BP Exploration is to minimise the requirements for TSAs as a part of Petroleum Contracts.

The nature of TSAs, the time and effort that needs to be put aside to deal effectively with them, and the minimal returns to the company (in terms of favourable agreements for future petroleum developments), casts considerable doubts on their function and effectiveness in terms of positive benefits. BP does not have the resources to compete with other oil companies operating in Venezuela with regard to manpower concentrated in the technical service area. The resources currently expended on TSAs could probably be more effectively utilised in other areas. Therefore, it is unlikely that large commitments will be made to TSAs in the future.

May 1989

APPENDIX

AFRICA—PETROLEUM INDUSTRY AID PROJECTS

Mozambique

In 1988, the ODA provided assistance to the Mozambique government in funding the purchase of 10 bulk fuel distribution vehicles. BP Mozambique was the prime beneficiary of these vehicles, albeit they were purchased in meticaïs from the government.

Further assistance has been offered to fund urgently required spare parts which will enable the import and distribution of fuels to be effected in a more efficient and safe manner.

Malawi

In 1988, the ODA provided aid to purchase 10 bulk fuel distribution vehicles. These vehicles were allocated to Press Transport, a government controlled company, are being efficiently maintained and are fully utilised in the petroleum sector.

A USA/West German aid package is expected to fund a further 24 vehicles which are likely to be distributed to private hauliers, many of whom do not have high standards in vehicle maintenance.

Tanzania

The Italian government provided a soft loan in excess of \$10 million to finance the construction of a 30 kt/a lubricating oil blending plant (LOBP) by an Italian company in Dar es Salaam. The LOBP commissioned in early 1987. It is also understood that further Italian government finance was made available to Tanzania in order for the Italian company to construct a bitumen refining facility at the main products refinery.

That company has strengthened its position in the downstream oil market considerably as a result of these investments.

Ghana

The Italian government is providing further finance, of the order of \$20 million to the Ghanaian government, to finance the construction of a 25 kt/a LOBP, again by an Italian Company.

Angola

The Portuguese government supported a bid by Petrogal in 1987, Portugal's National Oil Company, for Angola's requirements of lub oils, additives and base oils. The contract, which included the provision of technical services and personnel to supervise blending of lubricants and aviation refuelling operations, was

worth about \$12 million per annum over a 3–5 year period. BP bid for the business, but was rejected in favour of Petrogal.

Petroleum Supplies to Africa

In recent years BP has made effective use of aid-funded imports, particularly from Dutch, Norwegian, EEC and American sponsored deals.

Letter from the Department of the Environment, Building Research Establishment

Thank you for your letter of 1 March and my apologies for the delay in replying. It is for ODA to put forward to the Committee their priorities and research policies; BRE is a contractor to them. However, the following additional points may be helpful to the Committee.

BRE's financial relationship with ODA has changed in recent years. Whereas formerly we received an annual subvention (as a consequence of our earlier advisory responsibility to the Colonial Liaison Section), we now obtain support on a project-by-project basis.

Some of these projects are requested by ODA's geographical departments, usually to meet a specific short term need in a particular country—for example to undertake research and consultancy to establish the causes of a major landslide or to provide advice on the establishment of a building materials manufacturing plant. These projects are specified in some detail, and BRE is able to demonstrate, in advance, that the appropriate skills and resources can be applied to the project. Once this has been accepted by ODA, the proposal is estimated and costed as accurately as possible—perhaps as a fixed price for a consultancy appointment, or on “cost plus” terms for a research project with more uncertainty about the work and outcome. Payment for work is from ODA's aid allocation for the particular country concerned, and may well have been subject to the recipient country's assessment of priorities. BRE has no part to play in this assessment, and is only brought in when a specific need has been agreed.

Most of BRE's work for developing countries is, though, funded from ODA's Research Vote, and administered by ODA Engineering Division, which adjudicates upon proposals put forward by research “contractors” including BRE. To some extent BRE is in competition with other contractors, although ODA gives medium term agreement to support a certain core effort at BRE (provided that individual projects are acceptable). Our work has covered the provision of sanitary facilities, the use of waste and indigenous materials and the design of earthquake and cyclone-resistant housing.

BRE also carries out work directly for the British Council. Although some items are not specific to country programmes, (eg arranging an appreciation course in building research, for students from several developing countries), most of the work is requested by the Council's individual country officers. For example, co-operative programmes may be established with building research institutes in developing countries as components of bilateral scientific agreements which strengthen links with Britain, or BRE may be invited to assist an overseas university in the establishment of a building research facility.

BRE also receives many visiting scientists and officials from developing countries. Sometimes this is at the specific request of the British Council, or of an ODA geographical department, but many visitors contact the Establishment directly.

R G Courtney
Director
19 April 1989

Letter from Professor A H Bunting to the President of the Institute of Biology

The field over which the Institute could offer evidence is extremely wide. Numerous commercial agencies in the United Kingdom help private sector counterparts, or official and parastatal agencies in developing countries in biological science and technology. Commercial firms, for example in the chemical, pharmaceutical, food, plantation and plant breeding industries, conduct trials and train people in order to support their investments abroad and to improve and market their products. But presumably, since (apart from the Commonwealth Development Corporation) these firms are not publicly funded, the Committee may not be concerned with them.

On the publicly-funded side, if one knew enough, I dare say it would be possible to list several ministries, including Trade and Industry and Environment, which are active over a similar range. The Research Councils all appear to have become involved in developing countries in one way or another. I suppose at least part of what they do is funded by ODA. The Institute should ensure that these diverse activities are represented in its evidence as far as possible, even though they are not primarily supported from the moneys voted by parliament for overseas aid.

But for most Fellows of the Institute, the main area of interest will be official aid, strictly defined, and hence those parts of the work of ODA which are concerned with biological scientific and technical aid to developing countries. The first point to make here is that this covers medical and educational matters, as well as aid in the natural resources field.

If one does not know ODA and its work, preferably over time, it is easy to misdirect comments on its work. Formally, ODA does not do anything on its own exclusive initiative. Aid is given government to government, in response to requests from governments. We know that ODA, like other aid agencies, has its preferred activities, ventriloquises requests, and does not accept requests it does not like; and we also know that political and export considerations affect what happens. But if one says "ODA should or should not do this or that", the bland answer is that nothing is done which is not requested by the sovereign independent governments of aid-receiving nations. So evidence must be drafted with care.

I hope the Institute will start by recognising that ODA, by and large, does a good job with very limited human and managerial resources. It deserves far more ha'pence than kicks. Though not all successive Ministers and Permanent Secretaries have had the devotion, flair and panache of Judith Hart or Andrew Cohen, most of them have tried to do a good job for the poorer countries. They have handled things well with the Cabinet and Treasury, so that the vote has increased in real terms for many years. The professional staff (though not always all the less senior administrators) have been and are competent and dedicated. So we need to be positive and supportive, suggesting improvements rather than condemnation and reconstruction.

It is also important to point out the very small number of professionals employed by ODA on policy matters relating to biological science and technology in headquarters and the development divisions. They do a sterling job, but they could do better if there were a few more of them to visit, read, and think about all that has to be done and could be done. I suppose the headquarters natural resources staff is fewer than 12 professionals—which seems to me to be a tiny number compared with the scale of natural resources development required in the co-operating nations. I shall return to the personnel and organisation for research separately.

It may also be useful to recognise that although many individuals in and around ODA are motivated by affection for and interest in developing countries and humanitarian goals, Government is moved by political, economic and commercial considerations. I see little to be gained by arguing that government should do otherwise: there may be more mileage in recognising that this is the attitude of the Government the electors have elected time and again, and that, whatever its faults, it can be a good basis for doing many if not all of the things humanitarians wish to do, even if they think the reasons are flawed.

The points I have discussed with Dennis Greenland concern:

- (a) manpower and training;
- (b) the relation between technical co-operation and the "capital" aid programme in individual countries;
- (c) the relation between bilateral and multilateral activities related to development in agriculture and the rural space; and
- (d) the central management of natural resources research.

I shall come back to these points.

We talked also about nutrition, hoping that John Waterlow is a Fellow (but I fear he is not), but we did not talk about other aspects of health, or about population, and beyond reminding ourselves of Peter Ellis, a Fellow of the Institute who is one of our most sensible people on livestock health, management and economics, world-wide, we did not speak of animal industries.

Nor did we talk about the vast range of post-harvest problems (which were the job of TPI and so presumably of part of ODNRI today) or about timber and fuel, which after all could be said to come in your personal parish. And we recognized but did not discuss the "green" area—perhaps we both feel that in poor countries the first need is for material development and the lessening of poverty, given that whatever is done to these ends must be done in an appropriately green and sustainable way—as indeed in our professions we have always recognized, long before the green Johnnies-come-lately presumed to teach us our business. (I think part of their trouble is that they are deeply conservative and frightened of change, forgetting the vast ecological changes that have created so much of the beauty of our man-made world).

We recognised implicitly that there is no such place as "the developing world". The natural and human environments of the developing nations are so diverse that there are hundreds of developing worlds, many of which may be contained within the bounds of a single district of India or Nigeria. So broad generalisations may not be either easy or useful.

Now to the specifics.

(a) *Manpower and Training*

For understandable, though not always acceptable reasons, the end of the colonial era led to a decline in the training of Brits for overseas service, and the expansion of training, in their own countries and in

Britain, of citizens of developing countries to look after their own biological affairs. In principle, right, but short-sighted, as we can now see—for two main reasons.

The first is that the demand for Brits for work overseas, so far from decreasing, has greatly increased, though most of it is outside British official services. We went through a number of years in which fewer and fewer Brits were trained, because no career could be offered in the official services. More recently we have in fact begun to rebuild the cadre, mainly through the volunteer movement—and many of the best volunteers are already working for international agencies. Others work for commercial companies including the Commonwealth Development Corporation. Since the companies use them, I believe they should help to train them, through a sort of commercial associate expert scheme; and I suggested at the TAA some time ago that CDC might give a lead in this. I believe that ODA could help such a trend to emerge, and that it would be in the national interest to do so, as well as in the scientific and technical interest of developing countries.

The second is that we did not realise that training does not of itself create a national cultural environment and knowledge system in which trained people can become effective. Trained people cannot be effective unless the knowledge system within which they are employed is itself effective. Moreover, because it is not effective, the shortage of truly competent manpower leads to a severe internal and external brain drain.

This is not, then, simply a question of numbers of QSEs, or of the size or rate of growth of the science and technology budget, as some “managers” seem to think: it is a long and slow haul to build up a responsible and effective intellectual community in a newly independent developing nation.

Curiously, the French seem to do this better than we do, by treating their overseas graduates (like their former overseas territories) as if they were French for as long as possible. I believe that ODA, acting through the British Council, could help to develop and maintain the associations of overseas scientists who were trained in Britain with professional life in Britain; and that in particular countries Governments might be helped, perhaps with the aid of the Royal Society, to develop symbiotic rather than confrontational relations with Universities and professional societies; and that Government could usefully support even more than it does the flow of professional information to developing nations—a task for CABI.

(b) The Relation between Technical Co-operation and the “Capital” Aid Programme in Individual Countries

The guiding principle for me is that technical assistance including research, research support and training, should (at least in part) be used to support the capital part of the aid programme for the nation. In my experience the two parts are often considered separately. A crude example: if a new road is to be built to open up formerly inaccessible regions of Bongoland, the farming, forestry, settlements, health, education and much else along the route must be expected, even intended, to change. The road is more than an engineering development: it should be accompanied by technical assistance to make the best possible use of the natural resources to which it gives access.

(c) The Relation between Bilateral and Multilateral Activities Related to Development in Agriculture and the Rural Space

The stock example for me concerns the CGIAR. Britain supports the Group and most of the individual Centers. These Centers have co-operative programmes in many countries in which Britain is also a bilateral donor. Since support to CGIAR and Centers runs direct from the Natural Resources Advisers’ department, while bilateral aid is the business of the geographical desks and the regional development divisions, the two arms do not necessarily support each other. Where they do, they can substantially increase the return on UK’s investment in the CG system.

I should also expect to find, if I knew enough about it, that similar divergences between multilateral and bilateral actions arise in Britain’s memberships of FAO, UNDP and the World Bank Group.

(d) The Central Management of Natural Resources Research

The structure of research in ODA is at last becoming less heterogeneous. ODNRI is emerging as the central authority; and if I interpret correctly what I heard at a meeting of the Tropical Agriculture Association last week, ODNRI may in future execute a large part of the research and development programme in the natural resources field, either in its own laboratories, etc. or in contracting institutions. No doubt ODNRI will itself contract with geographical desks and development divisions to carry out research and development tasks. Three points need to be watched.

First, the nature of the management link between the headquarters in Eland House, which will oversee the political agreements with individual nations and with multilateral agencies, and the technical and professional management of ODNRI—whose staff are accustomed to a measure of freedom in arranging programmes with individual international and national research institutions. The task is to combine maximum developmental effect per pound spent with maximum creativity and imagination of ODNRI scientists. The problem is not new, but the new arrangements may bring it to the fore.

Second the leadership of ODNRI itself: the present incumbent, an economist, has done an excellent job in bringing the parts together on the site at Chatham. Whether he is the right director for a more

technical future is another matter: I would myself prefer a professional biologist with a sound foundation in chemistry and overseas developmental experience. (Any resemblance to Bunting is incidental. I do have an excellent candidate in mind, one of my former students, but no names, no packdrill.)

Third, the scope of ODNRI. The former TPI, the largest component, was concerned with post-harvest questions and (unlike AFRC institutes) had a large and prestigious economics section. COPR, formerly the anti-locust centre, was largely specialised though it has been developed to include other aspects of crop protection. LRDC, in spite of many noises off, was concerned with the mapping and evaluation of soils. No one in the party has been concerned with how soils are used, with the growing of crops, with weather and climate (except in relation to outbreaks and migrations of pests), with crop improvement/plant breeding and “bio-technology” (other than fermentations), with animal health and production, and with the molecular-level science which increasingly underpins so many of these fields of activity and offers such important hope for the future.

These topics were handled from headquarters through special units or contracts in British national institutions. This is an excellent arrangement, and indeed it might be developed to ease the problem of career prospects for experienced scientists who have served overseas. But if, as I believe is right, the director of ODNRI is to be responsible for the whole range of natural resources R&D in the UK aid programme, he will need full-time professionals on his staff who keep under review the needs of development overseas and the activities of the national institutions, and will help to manage the contracts and projects.

I am not sufficiently closely in touch with the detail of the aid programme nowadays to offer comments on particular activities within it. No doubt other Fellows are better placed to do that. It may be enough to say that in all the cases I know about in the bilateral programme the professional decisions on which expenditure is based are at least defensible and usually good.

The principal gap I see is in the development of seed and planting material industries, and the related legal and service elements, in developing nations. Whether these industries are in the public or private sector makes no difference theoretically—but in practice there are few public-sector seed enterprises that work. Without such industries there may be no point in supporting plant breeding at all, since there will be no way in which the products, however good, can reach the farmer. This point is much more important than all the Mooney ballyhoo about the sins of the IBPGR and the multinational seed and chemical companies. In fact we need the help of the seed industry to set up industries in the nations. This is incidentally a task CDC has set itself.

As in most aid programmes, the technical professionals in ODA’s natural resources department are less sensitive than I would wish to developmental, economic and social questions. This sort of weakness is widespread among technical folk in the aid business and indeed is prominent in the CGIAR and the IARCs also. But beyond enclosing a copy of an attempt of my own to spell out the relations between agricultural research and agricultural development [*not printed*], I have given up labouring this one. My thoughts are so different from the received wisdom that I do not expect that even you will read this piece through to the end. I know I am right, because I have based my outlook on damn near half a century of experience of failures as well as successes.

Finally, I doubt whether there is much mileage to be got, in the House of Lords, in trying to blame ODA for the alleged errors of the World Bank.

A H Bunting
Professor
11 May 1989

Additional letter from Professor A H Bunting

Science and technology do not of themselves promote development. Conversely one can seldom, or perhaps never, ascribe failures of development to meanness in the science and technology budget. The functions of science and technology are to strengthen the knowledge base and operational methods for development: but unless the development policy of government is sound and determined, and the actions it proposes are feasible and economically as well as socially sustainable, there will be no market for the products of science and technology.

More science and technology may be (but is not always) a necessary condition for development, but it is seldom a sufficient one. But from the days of ACAST, and even before, many in the science and technology business have behaved as if they believed (along with certain naive economists) that research is the engine of development, and that provided enough is spent, science and technology of themselves are bound to lead to economic growth, greater efficiency, and maybe even equity.

12 June 1989

Letter from the Centre for Tropical Veterinary Medicine, University of Edinburgh

Thank you for your letter concerning Overseas Aid. My reply is rather late as I have been unwell, but I hope it may be of some use.

I write as Director of the Centre for Tropical Veterinary Medicine which is one of the departments of the Veterinary School of the University of Edinburgh. Our research is mainly supported by ODA (46 staff) with smaller grants from EEC, Wellcome Trust and the Beit Foundation. Our teaching (20 staff) is entirely post-graduate and consists of three Diploma/MSc courses; this year we have 49 students from 30 different countries attending these courses and a further 20 + students studying for higher degrees (MPhil and PhD). Half of the teaching staff are on short term contracts that are funded from tuition fees. I will only make a few points.

1. ODA is staffed by enthusiasts and is a good organisation. It does however, suffer from the "clean cup—move round" syndrome with a too frequent turnover of staff at headquarters. An important point to note is that the British aid programme is administered by permanent staff but carried out by casual labour. For example, my own ODA funded staff currently only have one year contracts and, apart from administrators and those in the Corps of Specialists, all staff working overseas have short term contracts. One realises that successful overseas aid is theoretically suicidal but a better career structure for scientists is definitely needed.

2. It is more efficient to carry out sophisticated research in developed countries because they have the essential infrastructure. The "high tech" research institutes that have been created in third world countries are extremely expensive and tend to become ivory towers that are envied and resented by indigenous scientists working in poorly funded national institutions.

3. Some of the more advanced developing countries now have plenty of trained scientists available (eg Kenya). They no longer want well-paid expatriate TCOs in their midst but they still recognise that they need support in the form of advice, encouragement and finance. This is best achieved by linking institutions in bilateral collaborative research programmes with frequent exchanges of staff and information. However, this requires the maintenance of groups of interested and enthusiastic experts in centres in Britain; unfortunately ODA, whilst embracing the idea of links, are moving away from this concept and I was recently told that "ODA is not in the business of creating or maintaining centres of excellence". This, of course, is exactly what they have already done in the case of the CTVM in Edinburgh; the provision of one year contracts is not the way to retain or attract expert and motivated staff.

4. We believe that one of our major contributions is the provision of self-confidence and motivation for professional people in developing countries. This is undoubtedly best accomplished by out-of-country courses where third world nationals can think objectively about the problems of their own country and discuss them with professionals from other developing countries in a secure and neutral environment.

5. The present aid programme favours the training of third world professionals from the public sector; more effort should be directed to those from the private sector.

6. Information exchange and the provision of essential literature to national institutions in developing countries should be markedly increased. Many laboratories in the third world have no money for journal subscriptions. The setting up of a centre for information should be considered.

I will conclude with two examples of aid that is needed in the veterinary sphere.

The Sahel

1. The principal sources of animal protein for people living in the Sahel and countries to the south of the Sahel are goats and sheep and the governor on the availability of meat supplies is disease disseminated by movements of nomads. Two diseases, in particular, are incriminated, viz. sheep pox and goat plague (peste de petits ruminants). In recent years workers at the Animal Virus Research Institute at Pirbright have engineered and successfully tested a recombinant vaccine in which the vector is a sheep pox virus vaccine that expresses genes encoded for protection against goat plague. AFRC policy has meant that work on this engineered vaccine has stopped because it is "too near market". There are, however, no commercial vaccine production plants in the Sahel and the potential returns for a private plant outwith Africa are considered too meagre. Support for the production and administration of the new recombinant vaccine would pay enormous dividends in available animal protein, in an area notoriously subjected to food shortages, and in goodwill.

Sri Lanka

2. When the Sri Lanka Government accepted the offer of the Indian Government to furnish a Peace Keeping Force they unwittingly exposed their livestock to rinderpest. Live goats to feed the troops were purchased in India and many of the shipments included animals infested with rinderpest and foci of the disease emerged in the neighbourhood of many of the Indian Army posts. Now that the emergency has waned and the size of the Indian Peace Keeping Force has diminished it is time to aid the veterinary

authorities to eradicate the disease. They need help to diagnose the disease, segregate and treat affected animals and to vaccinate animals at risk. In particular they need help to monitor the efficiency of vaccination.

Finally I would like to add that I believe that the importance of aid as a means to develop international friendship should be recognised by the inclusion of the Minister for Overseas Development in the Cabinet.

David W Brocklesby
Director
20 April 1989

Memorandum by the Committee of Vice-Chancellors and Principals

SUMMARY OF THE POINTS IN REPLIES FROM UNIVERSITIES TO THE CVCP ON THE ISSUES BEING CONSIDERED BY THE SELECT COMMITTEE

1. Possibly the most important factor in aid for developing countries is the provision of training at undergraduate and postgraduate levels and through special programmes. There is need for more studentships and fellowships for people from developing countries because of the high fees which universities now have to charge as well as the high cost of living in the UK compared with developing countries. Training of UK graduates in areas of importance to developing countries should also be expanded.

2. Regular postgraduate programmes and specially tailored short courses are important contributions to the aid programmes. Short courses should be carefully focussed and participants selected and adequately prepared in advance.

3. There is a need for training and support in the areas of science policy and the management of science and technology programmes in developing countries. Work in this area by the Commonwealth Science Council is a useful model which could be applied more widely. Education and training of specialists must be linked with provision of appropriate professional and technical support.

4. Provision must be matched closely with the needs of the countries. Training of overseas students must be appropriate to their home countries; PhD and Master's courses are not necessarily suitable for all such students. The aim should be to fill particular skill gaps. Some types of training are best provided in the countries concerned. Collaborative training programmes with institutions in the overseas countries can work well.

5. Regionally-based groups drawing on the resources of several countries and tailored to local circumstances are needed.

6. A small unit to act as a focus for training in science management for developing countries and to act as a clearing house for information could be helpful.

7. Scientific and technical aid should be considered explicitly in the context of the UK's general aid programmes.

8. The cost of training is small in relation to the gains resulting from consequent partnership and trade agreements.

9. Aid needs to be focussed on areas of activity which are not being met in the countries themselves and should aim to be complementary. A priority of aid to developing countries should be the alleviation of absolute poverty. Projects should be targeted towards basic development aid, taking account of the capabilities of local communities and the long term sustainability of the programmes, including the generation of employment.

10. Evaluation of British contributions to technical co-operation needs to be improved.

11. Universities welcome the support received from the Overseas Development Administration and the British Council for research and other projects in developing countries. Relationships, and definition of roles, between the ODA, British Council and institutions need to be clarified. ODA research priorities need to be carefully defined.

12. Universities welcome bilateral or multilateral financial support for the development of aid projects, particularly training and research programmes but emphasise the need for their full costs to be covered in contracts with ODA and other agencies, including overheads; otherwise their capacity to maintain the UK science base on which future developments depend, will be progressively weakened.

13. Some aid projects involve timescales longer than the normal three year limit for funding under Government rules. It would be helpful if the ODA could operate rolling programmes which would provide researchers with clear short term and long term objectives and would enable the ODA to undertake longer term planning of programmes. Universities' relationships with ODA are generally positive and helpful.

20 March 1989

Memorandum by the Department of Trade and Industry

Q.1 A witness from the British Council (see Q 137) mentioned that DTI is initiating a scholarship programme in developing countries. Please could you give some details of this?

This scheme was introduced in 1 April 1989 as part of DTI's Export Initiative. It offers opportunities for industrial and commercial attachments for present and potential key decision makers abroad in the procurement field. The intention is to provide the trainee with practical rather than academic experience and training in his chosen field within a British working environment for periods of from a few weeks up to twelve months. Candidates may include lawyers, accountants and certain officials as well as senior engineers and managers provided they meet the scheme's objectives.

The scheme is a joint initiative in that we expect participating companies to take the initiative by proposing candidates for training and subsequently meeting at least 50 per cent of the total cost, with DTI funding the balance. In this the first year of the initiative, we hope to fund some 50 people from overseas, incurring a total expenditure of about £500,000 with DTI meeting approximately half the cost.

Apart from the crucial role in the scheme envisaged for British companies, overseas Posts and the British Council will also have major parts to play. Overseas posts will be consulted about prospective candidates and, in some instances, may propose them. It is envisaged that their involvement should also enhance the prestige attached to the scheme at the outset. The British Council will act in an agency capacity for DTI looking after pre-departure arrangements including English language testing for the trainee and providing certain services and welfare support (if needed) during his stay in Britain.

In promoting this scheme with UK companies, we are sensitive both to the fact that our resources in this first year are fairly modest and of the dangers of "over-promotion". Our main effort has therefore been directed towards inviting participation by writing to some 40 companies across the spectrum of British industry and commerce, although details are also being made available to trade associations, other representative bodies and companies on request.

Q.2 The British Council (QQ 137, 141-45) suggested that they are sometimes at a disadvantage because their competitors receive additional subsidies from their governments where they stand to gain commercial advantage. Would you comment on the suggestion that DTI might support aid-type activities in such circumstances?

Aid support is principally a matter for the Overseas Development Administration. The DTI, however, is acutely conscious of the potential commercial benefits in the medium to longer term of overseas student training, including that which is undertaken through the Aid Programme. We are pursuing this interest in three ways. First, the Department is closely involved in the interdepartmental consideration of overseas student questions and is able to ensure that commercial aspects are taken into account. Second, the Department is considering, principally in consultation with the British Council, the nature and extent of existing links between overseas students in the United Kingdom and British companies, and whether these can usefully be improved. Third, the Department is itself active in promoting overseas student training of potential commercial relevance to the United Kingdom, for example, through the Hands on Training Scheme described above.

Q.3 Do you have any information on the scale of activity undertaken by UK industry in support of developing countries whether by training or provision of goods and equipment, whether on a concessional or commercial basis? To what extent do UK firms act as contractors for foreign aid donors, whether bilateral or multilateral?

UK exports to developing countries in 1988 amounted to some £13.6 billion, some 16.7 per cent of our total exports. In the same year, gross public expenditure on aid is provisionally estimated at £1.6 billion, of which nearly £1 billion was spent on bilateral programmes in developing countries, including through the Aid and Trade Provision £60 million.

British companies undertake considerable training of foreign nationals as part of their ordinary commercial activity, both contractual and non contractual. There is no information on the full extent of this. Companies are known, however, to be involved in training foreign nationals under the auspices of several Government sponsored schemes, principally ODA's Technical Co-operation Training, FCO's shared Scholarships and Awards Scheme and the CBI's Overseas Scholarships Scheme for Graduate Engineers.

British companies are successful in obtaining contracts in developing countries which are funded by untied aid from other donors. In January 1989 a major contract was won by GEC for railway resignalling in Thailand which is being financed by untied aid from the Overseas Economic Co-operation Fund (OECF) of Japan. Plessey and GEC have also been successful in winning other OECF funded contracts in China and Thailand. However, as these are ordinary commercial contracts which normally do not have any HMG involvement, we do not have precise information on the extent to which British companies act as contractors for foreign aid donors.

A table is attached showing British companies' recent performance in winning contracts financed by the major Multilateral Development Agencies.

I hope that this information will be of assistance to the Committee.

MULTILATERAL DEVELOPMENT AGENCIES—UK PROCUREMENT

Agency	Works		Supplies and Equipment (S) and (E)		Consultancy services		All contracts	
	US\$ million	Percentage share (position)	US\$ million	Percentage share (position)	US\$ million	Percentage share (position)	US\$ million	Percentage share (position)
World Bank ⁽¹⁾	17.90	3.3(7)	(S) 244.80 (E) 321.30	5.4(4) 9.2(4)	125.90	17.8(2)	709.90	7.6(4)
Asian Development Bank ⁽²⁾								Comparison with major competitors (% share)
								1 USA (15.0) 2 Japan (13.7) 3 Germany (9.5) 5 France (6.9)
EDF V ⁽³⁾	32.70		2.0(4)		Consultancies			1 Japan (11.6) 2 USA (4.1) 3 Germany (4.0) 5 Switzerland (1.5)
					11.90 T/A 4.20	12.4(3) 14.0(3)	48.90	2.7(4)
EDF VI ⁽³⁾	84.65	8.3(3)	148.22	24.5(1)	64.45	15.6(3)	297.32	14.5(2)
Inter-American Development Bank ⁽⁴⁾	12.47	35.7(1)	4.44	20.6(2)	17.90	31.5(1)	34.81	30.7(1)
	44.53	0.7(9)	(S) 18.58 (E) 33.72	1.3(9) 2.5(8)	2.36	0.9(8)	99.19	1.1(9)
African Development Bank ⁽⁵⁾	—	—	—	—	—	—	318.60	9.1(3)
								1 USA (8.0) 2 Italy (4.6) 3 Japan (4.4) 4 Germany (2.9) 5 France (2.0)
								1 France (17.4) 2 Germany (10.6) 4 Italy (8.3)

(1) Fiscal 1988 (to 30 June 1988).

(2) Twelve months to 30 June 1988.

(3) Cumulative to 31 December 1987 (mecs).

(4) Cumulative 1 January 1979 to 31 December 1986.

(5) Cumulative 1981–87 (million Bank units of account).

Source: World Aid Section, DTI.

October 1988

Letter from the Food and Agriculture Organisation of the United Nations

Thank you for your letter of 26 January 1989 inviting FAO to submit written evidence to the Sub-Committee. We welcome this opportunity of contributing to the work of the Sub-Committee, and I attach for its consideration comments on points 4 and 5 of your letter.

The comments are based on the premise that bilateral scientific and technical assistance should *inter alia* contribute to the following:

- (a) establishment and upgrading of national capabilities and institutions for research, development and dissemination of information and technology in such a manner that recipient countries can sustain them with their own resources once the external assistance comes to an end;
- (b) development of environmentally sound and sustainable technologies that are appropriate to the needs of farmers of all sizes and both sexes;
- (c) availability of the inputs and services that farmers require to reap the benefits of scientific and technical progress, for example, mineral fertilisers, pesticides, vaccines and farm equipment.

I take the liberty of going beyond your specific requests by providing recent FAO publications that are relevant to the Sub-Committee's terms of reference [*not printed*]. We stand ready to provide further information and assistance if this is required.

C H Bonte-Friedheim
Assistant Director General
Agriculture Department
20 March 1989

Q.1 How well is aid adapted to the needs of the recipient countries?

It is not uncommon for bilateral (and some multilateral) aid to fall short of recipient country needs because, for example:

- (a) the goods provided are of a type which is inappropriate for the country or predominant farm situations;
- (b) the aid results in institutional mechanisms or physical structures that carry recurrent costs beyond those the recipients can sustain from their own resources.

In the case of FAO, assistance is normally only provided in response to requests from recipients' governments, and should, therefore, be in line with their established needs and priorities.

Q.2 What are the respective merits of bilateral and multilateral funding of scientific and technical aid?

Bilateral aid can have advantages over multilateral assistance in terms of greater flexibility and shorter response times but may suffer from the fact that it is commonly tied to the provision of goods and services from the donor country which may not match recipient needs closely. Most multilateral assistance, in contrast, involves international tenders and recruitment, and through a better and easier access to sources for goods and services in different countries may be in a better position to meet the needs of recipient countries. However, such potentially negative features of bilateral aid can be overcome by ensuring that the requirements are set by the recipient, and, where loans are concerned, are provided at, or below, prevailing international prices.

It is felt that longer-term commitments are required to ensure an impact of external research and technical assistance. A common weakness of bilateral assistance is its *ad hoc* or short-term nature. Although it is recognised that some agencies, such as US AID, are now altering their policies allowing, for example, for up to 10 years or more commitment for research support programmes. Multilateral agencies are generally better placed and provide greater continuity, although their assistance programmes depend largely on extra-budgetary resources which are often made available on a short-term project basis. Multilateral agencies, however, through their regular activities are providing an institutional continuity and maintain a longer-term interest in specific technical areas.

Finally, there is the question of the breadth of expertise available to bilateral aid agencies compared with multilateral ones. In the main, bilateral agencies lack the necessary breadth of expertise necessary to formulate and manage effectively the wide range of assistance programmes they support. They lack the personnel with the field experience essential to prepare aid programmes appropriate to what tends to be very country- or even area-specific socio-economic and technical environments. This is less the case for the UK and France because of obvious historic reasons, but as time goes on even they are becoming less able to draw on the accumulated knowledge and wisdom of their former colonial civil servants. The multilateral agencies, in contrast, are able to draw on the expertise of many nationalities and disciplines through their own headquarters' and field staff and by short-term international recruitment.

Memorandum by the General Electric Company plc

Introduction

1. The Select Committee has invited evidence on the objectives and effectiveness of the United Kingdom's scientific and technical aid to developing countries. GEC as a group has had a very long standing trading involvement with many of these countries, and provides them both with technologically advanced products and with technological knowledge through arrangements for local manufacture—in some cases through subsidiary companies—or by other means. The trade of the Group with developing countries may be undertaken on a purely commercial basis; may be financed through UK aid, whether by means of bilateral aid or the Aid and Trade Provision; through multilateral aid from the World Bank, the European Commission or the various regional development banks; and in certain recent cases through other countries' bilateral aid schemes such as those of Japan and Norway.

2. In 1988–89 the Group's total exports from the UK amounted to £1,221 million; of this £48 million were to developing countries in Africa, £161 million to developing countries in Asia and the Pacific, and £25 million to developing countries in South America and the Caribbean. It is not readily possible to say how much of the total was financed by aid from the UK and other bilateral aid funds and from multilateral agencies. Instead examples are given below of GEC projects and subsidiary companies in the developing countries and of related training activities.

3. The information in this note relates to the Group's activities and organisation up to the end of the financial year 1988–89, ie up to 31 March 1989.

Projects in Developing Countries

4. Examples of technologically advanced projects supplied by GEC under UK and other aid programmes are as follows:

- (a) In Uganda GEC Large Machines are undertaking the up-rating and rehabilitation of the important Owen Falls hydro electric station at a cost of £10 million financed by ODA. New technology is being employed and as part of the project Uganda Electricity Board (UEB) engineers will be trained in the UK and on site in the manufacture, testing and inspection of plant and components and its erection on site. The new skills will extend to far greater machine stripping and rebuilding than would be experienced under normal overhaul, and will include fault finding and diagnosis. As a consequence the UEB engineers will be better equipped to operate and maintain the station efficiently in the future.
- (b) GEC Traction have pioneered a procedure for rehabilitating to a virtually new condition their old diesel electric locomotives which in a number of developing countries have been out of service for years. Such projects have been completed for locomotives in Kenya and, with European Development Fund finance, for locomotives in the Sudan; and a further one funded by ODA is now being undertaken in Tanzania. After completion locomotives are returned to service capable of a further 15 years operation at less than half the cost of new ones. The large part of the work is done in the workshops of the railway authorities and so valuable techniques and skills are taught to their engineers and artificers. In GEC's experience such projects are most cheaply and economically undertaken by the original equipment manufacturer working in the closest collaboration with the railway authority.
- (c) As part of the contract for Yue Yang power station in China, financed by means of a UK Government support soft loan, GEC-Turbine Generator Co is supplying technical personnel to visit China and advise and instruct the Chinese scientists and engineers in a variety of advanced technological subjects including the construction and commissioning of modern equipment, such as turbines, boilers, computer controls, etc., which are also supplied under the contract.

Also, a number of Chinese technical personnel will be visiting the UK to take part in a training programme involving periods in the factories where advanced technology equipment is manufactured and also spending time at sites, such as power stations, where the most modern equipment is in operational use. Apart from the assimilation of the technology involved in this equipment, the Chinese will also learn how this equipment, much of which is of the most advanced design, is efficiently utilised. Computer manufacturing factories will also be visited for periods of time and the Chinese will learn the most up-to-date technology in these factories. Additionally a considerable number of Chinese scientists and engineers will work in the design offices of GEC-TG and will actually be members of the team carrying out the design and engineering of power plant equipment, electrical control and instrumentation. During the period training and instruction will be given in the most advanced methods of design of many types of high technology plant.

- (d) GEC-General Signal are undertaking a colour light signalling project in Thailand at a cost of £37 million financed under the Japanese OECF aid scheme. The project provides for the training of 12 engineers in the UK and approximately 500 maintenance and operational staff in Thailand.
- (e) In India GEC-General Signal are undertaking a train describer project in Delhi at a cost of £5.3 million funded through UK bilateral aid. The project provides for training in the UK of some 20 engineers.

GEC Subsidiary Companies in Developing Countries

5. Subsidiary companies of the GEC Group in developing countries must operate profitably and efficiently; in doing so they provide an effective means of transferring technology from the UK as well as giving soundly based local employment. The main companies are:

- (a) In India, GEC of India, English Electric of India and Avery India have a combined turnover of £97 million and employ about 11,500. They manufacture a wide range of electrical equipment and components and have extensive technical co-operation and training agreements with UK companies, and train staff both in the UK and in India.
- (b) In Bangladesh, the GEC Group of companies have a combined turnover of £4 million and employ 533 people in the manufacture and sale of electrical equipment. In recent years they have sent 60 employees and customers' staff to the UK for training. The Group has a proven engineering and project management capability and its presence and involvement has given the Government of Bangladesh confidence to proceed with projects involving new technology such as the Ashunganj Combined Cycle Power Station and an optical fibre communications systems for Bangladesh Railways.
- (c) GEC Malaysia has a turnover of £18 million and employs 320 staff in a wide range of trading, manufacturing and contracting activities related to electrical, electronic and power equipment. Technology transfer has been mostly in the area of telecommunications and the TELITA information service.
- (d) In Zimbabwe GEC Group subsidiary companies have a combined turnover of £5 million and employ 227 people. In the past year or so five engineers from these companies and two from customers have been sent to the UK for training and 37 on courses in Zimbabwe. In addition, two GEC companies in the UK have held training conferences in Zimbabwe.
- (e) GEC Zambia has a turnover of £1 million and employs 28 people; it manufactures cookers and kettles and repairs and services a wide range of electrical equipment and in addition GEC Electrical Projects has continued to service mine winders in the Zambian copper mines. The scope for technology transfer and increased technological activity in this country is severely limited by the difficulty of obtaining hard currency.

Training and Education

6. As part of their sales promotion and project activities GEC Group companies often provide related technological training for citizens of developing countries. The cost of this training may be covered through the revenues of the project concerned—whether financed through aid or otherwise—or may be undertaken as a general promotional activity. Examples are:

- (a) GEC Avery provides courses for technicians to convert from mechanical to electronic skills; recently technicians from Kenya, Nigeria and Pakistan have been so trained and training for new products and software programming has been made available in India and other countries.
- (b) GEC Electrical Projects has provided, with British Council support, training for an Inspector of the Zambian Government in the UK in the principles of operation control, safety, testing and commissioning of electric mine hoisting equipment. This company is also providing training for up to 10 weeks for two trainees in project management and handling of contracts.
- (c) GEC Measurements has provided training in the SCADA control system for technicians from Pakistan, and Bangladesh.
- (d) GEC Transmission and Distribution Projects has provided a post graduate training in Power Systems Analysis of 15 months duration for a Lebanese technologist; this post MSc training was provided free of charge and in conjunction with the Hariri foundation. The business has also provided two weeks practical training for a Pakistan technologist in test procedures for electrical equipment.
- (e) For many years Picker International has provided in-house and field courses covering X-ray generators, electro-mechanical engineering, image intensifiers, computerised technology (CT) and magnetic resonance imaging for personnel from Nigeria, Ghana, Kenya, Uganda and Pakistan.
- (f) Ruston Gas Turbines provides training in the operation, maintenance and calibration of their gas turbines in countries where they are installed such as Nigeria, India, Bangladesh, Indonesia, China and Jamaica.
- (g) GEC Turbine Generators, as part of its major power station projects in China, are providing extension courses for Chinese engineers in planning production and financial control and quality assurance.
- (h) GEC Industrial Controls is providing training for two engineers for the Mannshan Iron and Steel Design and Research Institute Ministry of China in production, design and marketing.
- (i) GEC Meters has implemented a four week training programme for a Malaysian national covering Toolroom and Machine Shop, Production Engineering and drawing office procedures and the use of CAD equipment.
- (j) GEC Avionics provides programmes for total and partial technology transfer in China, India, Nigeria and Thailand.

Conclusion

7. Advanced projects funded through UK and multilateral and programmes make an essential contribution to the scientific and technological support of the developing countries. So also do the normal commercial trading activities of technologically advanced companies such as GEC and their subsidiary and associated companies in the developing countries. For the longer term UK training provisions at Universities and Colleges as well as secondments to industry contribute both to the competence of the recipient countries and also to the UK's long term trading prospects.

14 June 1989

Memorandum by Glaxo Holdings plc

INTRODUCTION

Glaxo is an integrated research based group of companies whose corporate purpose is the discovery, development, manufacture and marketing of safe, effective medicines of the highest quality. From small beginnings in Britain and the Commonwealth, Glaxo has sustained continued growth, based principally on products of original research, and is now Britain's largest pharmaceutical group, with annual turnover exceeding £2,000 million.

The Group has substantial interests overseas. With 87 per cent of its turnover outside the UK it has recently moved into the position of the world's second largest pharmaceutical company. There are 11,000 employees in the UK. Overseas staff of subsidiary and associated companies total approaching 24,000 of whom just over 13,000 are in developing countries.

Therapeutic areas in which Glaxo is involved are various, but principally anti-ulcerants, respiratory products and systemic antibiotics. Its anti-ulcer product, Zantac, is the world's largest selling pharmaceutical product. Expenditure on research and development in the year ended June 1988 totalled £230 million.

SCIENTIFIC, TECHNICAL AND FINANCIAL AID TO DEVELOPING COUNTRIES

Glaxo aid to developing countries is based on the belief that the development of its subsidiary and associated companies in those countries, through the normal course of business, is the most effective form of support. The provision of capital investment, of information, training and advice, together with the transfer of appropriate technology, develops the industrial base, providing good employment and ensuring the production of safe, cost-effective medicines appropriate to local needs. The Group devotes considerable resources of time and expenditure to these activities. The forms in which this occurs are:

(a) MANUFACTURING ACTIVITIES

Primary Production Resources

In pharmaceutical manufacturing, primary production is defined as the manufacture of bulk active pharmaceutical ingredients. These are usually either pharmaceutical fine chemicals, produced by chemical synthesis, or antibiotics, produced by fermentation with possible subsequent chemical modification. Primary production is normally a relatively complex operation, requiring a high level of capital expenditure and highly skilled staff. Facilities are often dedicated to the production of a single compound and economies of scale are important. Good infrastructure such as water, fuel and power is critical, together with safe effluent management facilities. Accordingly, Glaxo maintains the greater part of its primary production resources in the UK. However primary facilities have been established in developing countries and significant transfer of technology has been made in recent years to the following, supported by appropriate capital investment:

Argentina	Brazil
India	Korea
Mexico	Pakistan
Singapore	Turkey

In addition we have favourably influenced primary production development in China, Kenya and Indonesia.

Secondary Production Resources

Secondary production constitutes the manufacture of dose-forms such as tablets, capsules, ointments, ampoules, syrups, etc. which are then packaged for distribution and use. It employs the primary active ingredients described above, together with the pharmacologically inert excipients used in formulation and the appropriate packaging materials. Secondary production is normally carried out in separate factories or buildings from primary manufacture. It is normally less demanding on capital and infrastructure. Importantly, in the case of developing countries, it is very much more flexible. For example a tablet production facility may be used to produce a range of products appropriate to local needs, and packaging can reflect local languages and preferences. In most cases developing

countries will find that investment in secondary production facilities is more cost effective than investment in primary facilities.

In developing countries the greater part of Glaxo's efforts in terms of capital investment, together with information, advice and technology for production operations relates to secondary production. Significant resources in recent years have been allocated to:

Argentina	Bangladesh
Brazil	China
Colombia	Ecuador
India	Indonesia
Kenya	Korea
Malaysia	Mexico
Nigeria	Pakistan
Peru	Philippines
Sri Lanka	Taiwan
Thailand	Turkey
Uruguay	Venezuela

(b) MEDICAL AND SCIENTIFIC INFORMATION

In addition to the technical information required for production, developing countries require support in the provision of the large amount of medical and scientific information which is essential to ensure the safe, effective and correct usage of modern pharmaceutical products.

Glaxo operates in 50 countries and has local manufacturing operations in 30 of these. The Group's products are available in almost 150 countries through subsidiary or associated companies, appointed distributors, agents or state controlled distribution agencies. Extensive facilities are available by means of which our medically and pharmaceutically qualified staff based in UK or overseas provide information services to health professionals or distributors in any country in the world. These free-of-charge services represent a considerable benefit to health workers in developing countries, where comprehensive information services are not always available locally.

(c) TRAINING

In all aspects of production, marketing and general business management in which its operations in developing countries are involved, Glaxo is concerned to provide the appropriate training so as to ensure consistently high standards of manufacturing, marketing and business practice. Numerous manuals of correct procedure, instruction, training courses, seminars and conferences are made available for this purpose at home and overseas with visits by experts to developing countries and visits by trainees to UK and other industrialised countries. Training departments exist in UK and overseas where appropriate.

(d) CHARITABLE SUPPORT

This kind of short term aid to developing countries tends to receive most attention from the media. Clearly it has an important part to play in disaster relief and the alleviation of other acute problems. Glaxo contributes to charitable aid to developing countries and recent donations have included:

British Executive Service Overseas	£3,000
British Council: India	£21,000
Voluntary Service Overseas	£1,000
Bangladesh Flood Relief	£15,000
Sudan Red Crescent	£5,000
Institute of Tropical Child Health (five year programme)	£10,000
Oxford Department of Dermatology (development of low cost skin contact thermometers for paediatric use in developing countries)	£5,000
Sudan Disaster Appeal (medicines, attributed value)	£45,000

A substantial sum of money will shortly be donated in Tanzania for Wildlife conservation through the World Wildlife Fund.

(e) PHARMACEUTICAL INDUSTRY INITIATIVES

Glaxo participates in initiatives organised and managed by the Association of the British Pharmaceutical Industry (ABPI) to support developing country projects in the Maldives and in East Africa, concerned with pharmaceutical distribution and medical pathology laboratory services respectively. In addition a project is under development for the Sudan.

Through the medium of the ABPI Glaxo supports the training scheme in Quality Control for personnel from developing countries organised by the International Federation of Pharmaceutical Manufacturers' Associations (IFPMA).

Details of the ABPI projects in developing countries are available from the responsible executive Mr D Payne, of ABPI, 12 Whitehall, London SW1A 2DY (01-930 3477).

CONCLUSION

Glaxo recognises a responsibility to aid developing countries in providing the health care appropriate to their needs and, through the appropriate trade organisations, supports World Health Organisation policies and certain charitable efforts in this direction. As an international British based pharmaceutical company, it believes that the most effective manner in which it can continue to be of practical assistance, is by promoting the availability of safe, effective medicines through its subsidiary and associated companies, utilising local manufacture where appropriate.

J. A. Hunt
Director
5 April 1989

Memorandum by Dr Philip Gummett, Department of Science and Technology Policy, University of Manchester

1. I leave it to others with experience of direct scientific and technical aid to comment on this, save only to emphasise that the goodwill towards the UK that is gained for the relatively low levels of expenditure involved should never be underestimated. Obvious though this point is, it does still sometimes seem to need repeating. The goodwill has a cash value, though it is impossible to say what that value is. For the universities, part of that value is realised through a flow of overseas students.

2. The comment that I wish to offer is this: alongside direct scientific and technical aid, there is a clear need in developing countries for support in the area of *Science Policy and Management*. There is great potential for inefficiency and waste if indigenous and/or aid programmes are not prioritised, executed and evaluated properly. There are skills that can be cultivated in these respects. The cost of so doing is small relative to the cost of the scientific and technical aid programmes themselves.

3. We know that demand exists for training and support in science policy and management. In my own University, middle rank officials from some 15 developing countries have passed through our MSc course in science and technology policy in recent years, together with a Chinese official for whom we constructed a special one year programme. We also have a steady stream of visitors, and frequently receive requests for advice.

4. As well as the training that can be provided by regular postgraduate programmes, there is little doubt that short courses for more senior officials (eg newly-appointed science advisors), tailored to the individuals concerned, would be welcomed, though the numbers involved would be small. At this level, training requires only a limited number of courses, coupled with contact with science policy administrators and the like in the form of study visits to their establishments. I have in mind not only central government and research council establishments, but also technology-transfer organisations, science parks, and other bodies concerned with bridging the gap between invention and innovation. I know from contacts at the Commonwealth Science Council, who have actually organised a few highly personalised programmes of this kind, that, within reason, the necessary co-operation from UK institutions is forthcoming. There might be scope for expansion, beyond the Commonwealth, and for the study visits to take in countries additional to the UK. Organising this, of course, would depend on detailed knowledge of, and contacts in, the international scene (see paragraph 7, below).

5. A further desirable activity, of which again experience exists, aims to bridge the gap between training and aid. I refer to work done by the science management and organisation programme of the Commonwealth Science Council to develop science management tools appropriate to the needs of developing countries. For example, regionally-based groups, drawing in officials from several countries, have been set up (eg in the Caribbean) to develop science and technology indicators and evaluation methods appropriate to local circumstances. The officials involved receive advice from experts, particularly at the outset, but are expected then to take over the operation themselves, with some continuing support from the Commonwealth Science Council. This approach:

- (a) leads to the acquisition of new skills;
- (b) develops approaches that suit local circumstances; and
- (c) develops regional co-operation via sharing/pooling of resources among countries that often have very few science policy officials available to them.

6. There is scope for development of all the activities listed in paragraphs 3-5. In respect of officials coming to the UK for extended study (eg to take an MSc), there is, however, a real need for more studentships to be made available. This is obviously a general problem, applying to many classes of overseas students, but it applies as much to the science policy field as any other.

7. There may also be scope to establish somewhere a small unit that could act as a focus for training in science management and organisation for developing countries. As well as facilitating training visits (which, of course, the British Council can already do), the unit could act as a clearing house for information on science policy and management activities in developing countries, as a source of periodic reviews of the field, and as a co-ordinator of regional programmes of the sort described in paragraph 5. A unit as small as two professional staff, with clerical support, could do a great deal.

8. Finally, it is again worth emphasising that the cost of training in science policy and management is small in relation to the gains. The gains cut two ways:

for the developing countries, in the more efficient development and use of science and technology;
for the UK, in goodwill, a flow of students, and a deeper appreciation of the problems and potentials of individual developing countries which, skillfully used, could in the longer-run be turned to commercial advantage.

22 March 1989

Letter from Professor David Hawkrige, Institute of Educational Technology, Open University

Thank you for your invitation to submit written evidence to the Sub-Committee on Overseas Aid. I am unable to comment on the five specific issues you mention, as I have had only indirect experience of the UK's scientific and technical aid programme.

I have observed foreign aid to developing countries in three capacities: (a) as Chairman of the International Advisory Panel for the Chinese Television Universities and Polytechnics, which are being modernised and expanded with the help of a World Bank loan of \$100 million, (b) as leader of an international team carrying out research, with a grant from the Harold Macmillan Trust, on computers in secondary schools in developing countries, and (c) as a senior academic of the Open University, responsible for advising ministries and "open universities" in developing countries. In these capacities I have encountered certain obstacles to provision of effective aid by the UK, and these may interest the Sub-Committee.

1. When scientific and technological experts are required by developing countries, the UK's public institutions, particularly universities and polytechnics, are more likely than those in other industrialised countries to demand 100 per cent (or greater) financial compensation for release of their staff, with the consequence that staff from other countries may be preferred. In the case of my own university, funds from the ODA to subsidise provision of expertise were cut off 10 years ago, and, understandably, the DES expects its grant to be used for the benefit of UK residents.

2. When scientific and technological training in an industrialised country is required by nationals from developing countries, the UK's public institutions are more likely to charge higher fees and be less willing to subsidise courses than similar institutions in other industrialised countries. This has been very noticeable in relation to the Chinese project; from it, very few Chinese staff have been sent to the UK, while many have gone to Canada and the United States.

3. When provision of equipment is part of UK aid, commercial priorities may dominate, leading to ill-judged provision, weak follow-up services and ultimate loss of credibility. Supply of computers for the Indian CLASS project was an example of this happening. Lessons learned in India are being applied in the computers for Jordan project, but UK efforts in Tunisia are not leading to British computers being installed in schools on a large scale.

My own view is that such obstacles can be overcome only if the Government recognises that long-term scientific and technological influence is more important for the UK than short-term economic gain, and acts accordingly.

David Hawkrige
Professor of Applied Educational Sciences
10 February 1989

Memorandum by Hydraulics Research

1. INTRODUCTION

This note has been prepared in response to the letter of 26 January 1989 from the Clerk to the Sub-Committee. In our response we have tried to address the five specific points on which evidence was invited.

Regarding the question of trends in UK policy (point 3), the following observations are made. Whilst we believe that the UK system (as distinct from the quantum) of overseas aid can be held up as a shining example to the rest of the world, the effectiveness of this system is currently under pressure owing to cut-backs in staffing the Overseas Development Divisions. There is a growing danger that for the sake of

administrative efficiency a number of vitally important areas of research may be neglected or abandoned. The water sector is so threatened at present. A further threat is posed by the general tendency to go for large capital projects, influenced perhaps by the needs of the DTI. Important though many of those projects are to the infrastructure of developing countries, they often consume a disproportionately large slice of the available aid programme. This then reduces the scope for technology transfer through training and research, the form of aid most effective for long term development.

Hydraulics Research has experience of working with and for various multilateral aid agencies (point 5). A multilateral approach is essential for certain types of aid initiatives particularly where international co-operation is necessary between third world countries, for example in the Zambesi Basin, or the Mekong Delta. The penalty however is usually a very inefficient bureaucracy that is slow to respond. All too often the system of international tendering for consultancies results in second rate and less than up-to-date technology being transferred.

The main thrust of what we have to say refers to setting the objectives and priorities for the UK's scientific and technical aid programme, evaluating achievements and adapting the programme to the needs of the third world (points 1, 2 and 4). We refer in particular to developmental activities involving water and illustrate by reference to the work of the recently privatised company, Hydraulics Research Ltd. The conclusion to be drawn from our own experience is that the UK has an efficient and effective system for administering its overseas aid.

2. THE NEED FOR SCIENTIFIC AND TECHNICAL AID

The members of the Sub-Committee are aware of the problems the third world faces and therefore it is not proposed to detail here the often quoted statistics about poverty, environmental degradation, malnutrition and health problems that plague the third world. It is assumed that the Sub-Committee accepts in general terms that it is appropriate for Britain to assist the development of poorer nations and that public money should be spent on so doing. It is further assumed that the Sub-Committee accepts that at least some part of Britain's aid should be in the form of scientific and technical aid. By virtue of its rich scientific and technological heritage, also its close relationship with and understanding of third world nations, Britain is in a unique position to give such aid.

In order to appreciate the contribution that Hydraulics Research makes, it is relevant to first discuss briefly the different forms in which scientific and technological aid is needed by developing countries.

Though the perceived role of science and technology in development has undergone many changes during the past three decades, it is generally accepted now that science and technology are an essential part of development, playing a complementary role to political action. There are three distinct ways by which the developed nations can assist:

Problem Solving

Application of technology that already exists in developed countries to solve problems in developing countries.

Research

Development of new technology to solve problems that are unique to developing countries.

Endogenous Science and Technology

Development of a capacity to "unpack" imported technology and utilise it effectively and subsequently build own scientific and technological base.

2.1 *Problem Solving*

There are areas of technology such as design of arch dams, modelling complex flow phenomena, controlling beach erosion, predicting pollution decay, etc. that the developed nations already possess and which can be directly applied to third world problems. In this area of technology, the developing nations look to developed nations for assistance in carrying out specific tasks and, where repeated application of the technology is anticipated, to transfer the technology to their own institutions and scientists. Under this category may be listed the services of research institutions such as Hydraulics Research to carry out specialised tasks, engineering firms to design and/or construct specific schemes, Universities to conduct courses, and services of individual scientists or engineers to carry out specific tasks.

2.2 *Research*

There are technical problems in the third world for which no solution exists today. In countries as diverse as China, Egypt, India, Indonesia, Mexico, Philippines, Sudan and Thailand, for example, canal irrigation is a major part of the rural and national economy. In the context of canal irrigation and rural poverty, however, South Asia stands out, combining vast canal irrigation development with the greatest concentration of rural poverty in the world. The systems that have been developed at great cost have yielded benefits as can be seen from the increased self sufficiency in food production that India and others in the region have achieved. Yet their overall performance as distinct from potential performance has been consistently poor. To improve the anti-poverty performance of canal irrigation systems is now one of the great practical

and intellectual challenges facing mankind. Effective solutions appropriate to the conditions that prevail in third world nations do not exist and therefore need to be developed.

Canal irrigation is not the only problem that requires innovation. The large number of reservoirs built for irrigation, hydropower and municipal supplies are silting at alarming rates. Asian reservoirs for example are silting at rates ranging from three to 10 times faster than the design rates. This is partly due to inadequacy of the designs for often no field data is available and partly due to the intense activity in the catchments that follows development in the region. The technology available in the developed world is inappropriate and new methods suited to the conditions in the developing countries are needed. Many other examples may be cited. What is the specific link between the prevalence of malaria and irrigation? How does one design irrigation schemes to minimise the intensity of schistosomiasis? How effective is the lining of canals under conditions prevailing in the third world to maintain them? These and many other questions are very specific to developing countries because most of them are in the tropics, the crops grown are mostly low value crops and the land holdings are very small. The developing world needs solutions to these problems but are unable to evolve them endogenously for they do not have the scientific and technological capability. They look to the developed world to help find answers.

2.3 Endogenous Science and Technology

The third area where assistance is needed is in the endogenous development of scientific and technological capabilities. Western science, technology and know-how are important to developing nations, but not as isolated packages. There must not only be a receiver but also a receiving system. At present that receiving system does not really exist in the developing world. In 1974, of the 3 million scientists and engineers engaged in research and development throughout the world, 93.9 per cent worked in developed countries and they used 97.4 per cent of the research funds. Put another way, while the United States spent \$200 on research and development per head of population, most countries in Asia and Africa spent less than \$1. The availability of scientific personnel no doubt varies from country to country, but even the most developed of developing countries in this respect have inadequate scientific resources. Without this resource base any imported technology will wither and die. The developing countries need to build this capability up in order to be able to formulate science and technology policy, to integrate research priorities with development plans and to adapt imported technology to local needs. Thus the developing countries need science and technology not only for development but also in order that a scientific culture is developed and scientific methods are applied to the problems they face.

3. THE CONTRIBUTIONS OF HYDRAULICS RESEARCH

Hydraulics Research Ltd contributes to all three aspects of scientific and technological needs of developing countries. A brief description of Hydraulics Research Ltd is given in Annex 1 [*not printed*].

3.1 Problem Solving

Hydraulics Research Ltd has a record of solving problems for the civil engineering industry. It carries out investigative studies in order to give advice, usually to a client organisation which pays for the study, about the expected performance of some specific hydraulic works at a particular location. It serves developing country needs under the first category when work is commissioned directly by the developing countries, or by consulting engineers designing hydraulic works for developing countries, or by aid organisations, in particular the Overseas Development Administration. In addition it makes available specific techniques in the form of computer programs along with relevant support services.

3.2 Research

As a premier research establishment in the field Hydraulics Research Ltd carries out research of a strategic nature in order to understand different flow phenomena and evolve solutions to complex problems. By far the largest contribution it makes to developing country needs is under this second category whereby it carries out targetted research into water problems that are peculiar to, or perhaps acute in, the developing countries. This work is directly relevant to the Sub-Committee's deliberations and therefore is discussed in some detail. The work is funded by the ODA through a continuing contract arrangement and a special unit set up in the Hydraulics Research, the Overseas Development Unit (ODU), carries out this task. A brief description of the ODU is given in Annex 2 [*not printed*] but a few salient features may be listed here.

Execution of Projects

The creation of the Unit enables Hydraulics Research to provide a dedicated specialist group whose task it is to focus on water related problems relevant to third world development and thus over a period of time develop not only solutions to such problems but also learn to work effectively under third world conditions and with third world professionals. The problems that the Unit works on are always problems of interest to more than one developing country. Projects are directed towards field application and thus are always field based. Most of the field activity and, where feasible, subsequent analysis is carried out by staff from a third world collaborating institution with guidance from the Unit's staff. By this means the Unit is able in addition to carry out research and develop new techniques, to train counterpart staff, ensure wider participation and involvement in the project, and increase the opportunity for the developed

techniques to be applied in the field. The reduction in the cost of the project to the aid budget is an added advantage of this method of working.

The Unit's brief is to undertake research into water related problems relevant to the third world. In order to utilise the available resources effectively the Unit concentrates, with ODA's agreement, on problems related to canal irrigation and agricultural water resources. Even within this restricted area there are a wide variety of problems and the Unit focuses on nine different themes:

- irrigation water management;
- reservoir sedimentation;
- erosion control in catchments;
- sediment control in canals;
- drainage and land reclamation;
- minor irrigation design;
- health and environmental impacts of irrigation;
- canal seepage;
- development of appropriate equipment.

The Unit has evolved an effective means of disseminating its research results. Its results are published in the form of freely available research reports, technical notes and papers to technical journals and conferences. In addition the Unit produces technical videos, remote learning texts and slide packs on subjects where the Unit has made marked progress and evolved new techniques. The Unit also publishes a quarterly bulletin, the *ODU Bulletin*, each issue being devoted to a particular theme and carrying a list of relevant publications of the Unit (see Annex 3 [*not printed*]). Readers are encouraged to request publications of interest to them, these are sent free of charge. The bulletin is distributed to over 2,000 senior professionals in 125 countries and on average some three to four publications are sent out each working day. Another means by which the Unit disseminates its research results is through country based workshops. The workshops often focus on a specific topic of interest to the country concerned and are directed at around 25 participants from different institutions in the country.

In addition the Unit also carries out tasks of general interest to those involved in third world irrigation. It organises biennial regional symposia on topics of interest attracting on average over 100 participants from around 20 countries in the region. The Unit also collates and publishes in collaboration with the International Commission on Irrigation and Drainage a register of research in irrigation and drainage being carried out in UK every two years. Organising occasional conferences like the colloquium on research needs in third world irrigation in April 1987 is another category of tasks that the Unit undertakes on behalf of ODA.

Identification of Priorities

The identification of projects and the assessment of their priorities are subject to a series of checks and balances. Firstly, themes are identified in consultation with the ODA's scientific and technical advisers. These are subjected to scrutiny during the annual project planning committee meetings and the mid-year reviews of progress. ODA's engineering advisers, natural resources advisers and economic advisers usually participate in these reviews. The second check is to ensure that the needs of the recipient country are catered for. This is achieved by insisting that the collaborating Third World organisation should contribute towards the execution of the project, often through man-power for field work. The third check is provided through open publication of all findings thus encouraging peer review of all scientific outputs. Though this device has its limitations, it is the best means yet devised for ensuring quality and relevance of research effort. The final check is through periodic public and formal consultations with fellow professionals. The colloquium on "Research Needs in Third World Irrigation" organised in Wallingford in April 1987 is an example of such consultation.

Evaluation of Performance

Evaluation of performance of the Unit has many facets. All projects to be undertaken by the Unit are presented in the form of a detailed research proposal and approved by the developing country counterpart organisation and the ODA with professional advisers from more than one discipline participating in the decision. The work of the Unit is continually monitored by the Engineering Division of ODA, a senior engineering adviser monitoring the scientific activities and the head of the division the strategic policy. Each year a Project Planning Committee comprising senior staff from the Engineering Division and senior advisers from other disciplines assess progress made during the preceding year and approve plans for the future. In addition towards the middle of the financial year a less formal but more detailed review of progress is carried out by ODA staff.

The work of the Unit is also subjected to periodic independent review. These reviews may focus on different aspects at different times. One review in 1982-83 concentrated on the activities under one theme: saline intrusion into tropical estuaries. Another in 1985 dealt with the work of the Unit as a whole. Yet another in 1987-88 reviewed the equipment development activities of all the scientific units supported by ODA including the ODU at Hydraulics Research.

3.3 *Endogenous Research Capability*

Hydraulics Research also contributes to the third category of developing country needs in science and technology, that of assisting developing countries to develop their own scientific and technical capabilities. This it does in many ways:

- providing advice on a continuing basis to laboratories and institutions in developing countries and assisting them to solve specific problems. The assistance given to the Port Qasim Authority in Pakistan and the Delta Barrage Laboratory in Egypt, both funded by ODA, are examples;
- the project related training that the ODU provides in all its projects (25 projects in 14 countries), serves to upgrade the ability of both junior and senior staff in collaborating organisations to carry out technical tasks;
- training provided in Wallingford on specific aspects of hydraulics, tailored to suit the needs of individual participants, often spanning three to six months is another example of the contribution Hydraulics Research makes. On average some 10 to 15 participants from the third world spend around three months undergoing training every year. Training is arranged with the services of the British Council;
- the country based workshop on specific topics is yet another example whereby some 25 to 30 participants with a common interest but from different organisations in a country, are introduced to specific developments in their area of interest. On an average the ODU would arrange one such workshop every year in addition to the workshops organised by other departments at Hydraulics Research introducing specific tools such as urban drainage design methods;
- the regional symposia that the ODU organises in collaboration with a selected overseas institution is designed to expose third world participants to new developments in neighbouring countries and to provide a secure base for continued consultation for ODU staff in identifying priority areas for research;
- the quarterly ODU Bulletin serves the dual purpose of making overseas personnel aware of new developments and as a medium for effective dissemination of research results. The Bulletins always carry a list of publications of the ODU related to the theme of the issue concerned and these publications are available free of charge on request.

It will be seen that Hydraulics Research Ltd, in particular its overseas department, the ODU, contributes a great deal towards upgrading the technical capabilities of groups in the third world who undertake technical tasks in the field of civil engineering hydraulics and associated subjects.

4. GENERAL OBSERVATIONS

The concept of maintaining special units in different institutions to carry out research and develop new techniques in their specialist areas is, we believe, a system unique to the British aid programme. By doing so ODA has shown a clear understanding of third world requirements in the area of science and technology in recognising a subtle but definite distinction between transferring existing technology to those who do not have access to them and developing new technology on behalf of developing countries. This is an area other aid organisations would do well to emulate.

The special unit at Hydraulics Research, the Overseas Development Unit, has for its part evolved into a unit with specialist expertise in a subject area of great importance to the third world. In addition to research, which is its primary objective, it has evolved a very effective dissemination network system, both formal and informal, and a training scheme which is easily adaptable to individual needs. Being the largest and possibly the most effective group in the UK working on irrigation research it occupies a central role in the UK. The Unit is internationally known and gives leadership through activities such as the biennial publication of a register of research being carried out in UK in the field of irrigation and drainage and organising a research colloquium on research needs.

We at Hydraulics Research are constantly addressing the question: "Is there more that needs to be done?". By way of research in the field of irrigation and drainage the answer has to be "yes" for a great deal needs to be done. The 1985 independent review of the ODU and the 1987 research colloquium both identified a number of areas in the field of irrigation and drainage that need to be researched. Recently the International Commission on Irrigation and Drainage called for increased research effort in this field and this call is being responded to positively by the World Bank, with the support of a few developed countries including Britain.

There is another area where more could be done and the ODU is in an ideal position to contribute. This is in the area of improving the scientific capability of developing countries. There are a large number of trained scientists and engineers in the third world, some of them with good post-graduate qualifications from reputable institutions in the developed countries. Their contribution is at present limited for they work in isolation. They have first hand experience of conditions in the third world and the problems that plague irrigation schemes. Some have even empirical solutions to the problems but they remain untested for lack of opportunities. This is a resource with great potential and needs to be exploited.

One way of exploiting this resource may be through the mechanism of research fellowships whereby selected individuals from institutions in developing countries with innovative ideas will be given the

opportunity to develop these ideas in a research environment for a set period of around six to 12 months. It is important to emphasise that what is envisaged here is not training, for training deals with imparting known technology. What is being proposed here is developing new technology relevant to third world problems. Such a scheme has the advantage of not contributing to the brain-drain. It enables the development of an invisible network from which the investigator can work in an international environment even after he returns to his parent institution. It has benefits to the work of the ODU too in that the Unit will become a truly international centre for irrigation studies thereby further improving the quality of the work it does on behalf of the British Overseas Development Administration.

Dr T J Weare
Managing Director
11 April 1989

Memorandum by the Institute of Biology

As the professional institute covering all aspects of biology, this Institute is pleased to make the following submission on behalf of its 15,500 Fellows and Members, many of whom have had personal experience of scientific work in developing countries. We are pleased to note that science and technology continue to be important elements of overseas aid given by Her Majesty's Government. However, the Institute believes that there are several areas of biology and its application where more should and could be done. There is some concern:

- (1) that the substantial resources of knowledge in the United Kingdom, built up over many years, are not making the contributions they might;
- (2) that scientists with extensive knowledge and experience of tropical biology, now working in the UK, are not being replaced, so that the aid effort in science and technology may not be sustained; and
- (3) that the effectiveness and economic efficiency of both multilateral and bilateral aid projects could be increased if funding for multilateral and bilateral aid was more carefully co-ordinated.

We would like to comment further on each of these points, make some more specific comments on others raised by Fellows of the Institute, and finally relate our comments to the specific points on which the Sub-Committee has indicated that evidence would be welcome.

1. USE OF UK EXPERTISE AND SCIENTIFIC RESOURCES IN OVERSEAS AID PROJECTS

There are many scientists working in the UK with considerable knowledge and experience of tropical biology. Many of these were formerly employed by the Overseas Development Administration and its predecessors, while others have worked in universities, for national and international development and research organisations, and for commercial organisations. Most have sustained a continuing scientific involvement in the study of tropical biology related to their own spheres of interest.

Their knowledge of developing countries and their special needs is considerable. We consider that better use should be made of this expertise in tailoring UK scientific and technical aid to the needs of specific countries. Such aid can only be effective when related to the social, economic and political realities of the recipient country, as well as to its physical and biological environment.

The human resource is supported by the unique collection of biological material from the tropics held in this country. The collections at the British Museum (Natural History), the Royal Botanic Gardens, Kew, the CAB International Institutes (the former Commonwealth Institutes of Entomology, Mycology and Parasitology) are among the greatest sources of knowledge of tropical biology in the world. The Institute is concerned that, with changes in funding for the Natural History Museum, the Royal Botanic Gardens and the CAB International Institutes, where increasing emphasis is placed upon the principle that "user pays", the use of these and other resources which can support the development of tropical countries may decline substantially.

We recommend that the Committee consider how best continuing support may be provided so that this heritage of knowledge continues to be utilised for the benefit of those countries which receive aid from the UK.

One mechanism by which this might be achieved is, we suggest, the establishment of an agricultural and biological advisory body. We note the existence of the Tropical Medicine Research Board and the Committee on Overseas Economic and Social Research. Considerably more research and development expenditure is applied to agriculture, fisheries and forestry than to medical or social and economic research (ODA Report on Research and Development 1987-88, Table 2), but these subjects have no comparable committee or board. Such a board might be concerned with the evaluation of completed as well as proposed projects.

Another possible mechanism is by increasing the support for training students from developing countries. Many British scientists are involved in this activity at present, but funding difficulties often arise. The

training, or at least part of it, is often best conducted in the developing country where the constraints to action are more readily apparent. Support to strengthen linkages of UK institutions to those in developing countries, and to enable scientists to travel more frequently to the home countries of trainees, could considerably increase the effectiveness of our training activities while also helping to maintain the understanding in this country of constraints to development.

A third possible mechanism is by providing more support for the provision of information on the biological sciences to developing countries. Advances in information technology enable information to be delivered more cheaply and more widely than before. To ensure that administrators and scientists in developing countries are aware of research and other advances in the UK and elsewhere which might be advantageously be used by them, it is important that information reaches them in a suitably packaged and easily assimilated form. The delivery of information to the worker in the field through audiovisual and other methods has also been revolutionised. The UK has substantial expertise in the information delivery field which could be used to greater effect than at present.

2. SUSTAINING UK EXPERTISE

Although there is at present substantial expertise in the UK, based on experience of working in developing countries, we are concerned that this may be a wasting asset. There is a need to maintain this resource not only for the benefit of the developing countries, but also for the benefit of this country. In future the largest market opportunities will be found in the developing world, and our prosperity as well as theirs will depend on the development of trade with them. Of comparable importance to market opportunities are the environmental problems which know no national boundaries. Failure to tackle the problems, such as those associated with deforestation, affect us as well as them. ODA could and should play an increasing role in ensuring that sufficient support is available for young biologists from this country to work in developing countries. ODA's role should be not only to fund such young scientists directly, but also to stimulate commercial and other organisations to provide funding. If first-hand UK knowledge of the problems of developing countries continues to erode, it will affect not only our own aid effort but also the effectiveness of UK representation in bodies such as the World Bank, WHO, FAO, UNEP and other international organisations.

3. CO-ORDINATION OF BILATERAL AND MULTILATERAL AID

The Institute believes that both bilateral and multilateral aid have an important role to play in relation to the application of science and technology to development problems. Bilateral aid is effective in so far as problems are related to specific environmental, economic, social and political conditions prevailing in any one country. On the other hand multilateral aid enables knowledge and facilities to be pooled, so that difficult scientific problems can be solved more rapidly than would otherwise occur. The concentration of research efforts at the International Agricultural Research Centers supported (in part) by ODA have resulted in much faster progress in agricultural development than anyone had anticipated, averting very real fears of serious food shortages in south Asia and elsewhere. ODA's commitment to this work is to be applauded, as it is to other effective UN agencies.

The advances achieved through support for multilateral aid can contribute to the effectiveness of bilateral aid projects. We believe, however, that there is a need to improve mechanisms in the UK for co-ordinating our efforts in bilateral and multilateral aid programmes and projects. The advisory board for agricultural and biological subjects that we have suggested above could assist in this.

4. OTHER POINTS RAISED BY FELLOWS OF THE INSTITUTE

(a) *Continuity* in aid support is important. This may be illustrated by the unfortunate decision some years ago not to continue the work of the Anti-Locust Research Centre. Now the locust problem has again become serious, but we are in a much less advantageous position to contribute to its resolution than we might have been. Long-term support for research in plant breeding, forestry and other environmental matters is also essential because of the nature of the problems involved.

(b) The *population* problem. Rapid population increase remains as a major problem affecting all development work. Better statistics are needed, not least to quantify the aid *per capita* being provided. It is evident that aid *per capita* has been falling steadily, but it would be helpful to have good statistics on changes in aid *per capita* for those countries receiving most UK aid.

(c) *Balance* of aid to different areas of science and technology may need to be reviewed from time to time, and it is important that scientists as well as Government officials should be involved in such reviews.

5. SPECIFIC POINTS ON WHICH EVIDENCE WAS INVITED

(1) *Objectives*

We take these to be the objectives given in ODA's Report on Research and Development 1987-88, namely to sponsor and support "a programme of research aimed at gathering new knowledge and evolving new techniques directly related to the needs of developing countries ... of direct relevance to the poorer

sectors of poorer countries, with particular reference to the development of the rural sector". The provision of aid for R&D appears to have been satisfactorily related to these broad objectives. The comments already given indicate how we believe expenditure might be more effectively used to meet present and future requirements for UK scientists to serve the aid effort. The overall objective must be to strengthen the capability of all countries to manage their own resources effectively, through their own R&D capability.

(2) Priorities and Evaluation

The information available to assess how this is done is inadequate to express an opinion. Indeed, several Fellows of the Institute, with considerable experience of scientific aid to developing countries over many years, have commented that they have been unable to discern any consistent policy for determining priorities. We believe there is a need to involve scientists with relevant experience more fully in determining priorities and in evaluating projects. The advisory board that we have suggested might usefully contribute here.

(3) Discernible Trends

The recent emphasis on environmental questions and "sustainability" is welcomed. Good agricultural research has always recognised that it must relate to a sustainable farming system. It should continue to do so.

A trend towards greater bilateral aid is discernible. As emphasised above, a balance needs to be preserved between bilateral and multilateral aid; it appears to be about correct at present.

(4) Adaptation to Needs

We are concerned about the erosion of knowledge in this country of the special needs of developing countries. The importance of tailoring aid to the social, economic and political circumstances, as well as the environmental characteristics of developing countries cannot be too strongly stressed.

(5) Bilateral v Multilateral

We recognise the importance of both bilateral and multilateral scientific and technical aid, but we would like to see better co-ordination between the two. The results of some of the multilateral projects could be more fully utilised in the implementation of bilateral projects.

Dr R W J Keay, CBE
President
18 May 1989

Memorandum by the International Institute for Environment and Development

This Institute has for many years been promoting a balanced approach to sustainable development and environmental management. A number of important documents have been published in recent years which have drawn attention to the close links between environment and development. These include the World Conservation Strategy (IUCN/UNEP/WWF 1980) and the report of the World Commission on Environment and Development (1987)—also known as the Brundtland Report.

IIED professional staff advised the World Commission in the preparation of various sections of its report and also helped in writing and editing the entire document. Thus the Brundtland Report generally reflects IIED thinking. It made numerous recommendations about the measures required to achieve sustainable development—which it defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". We would urge the Sub-Committee to take full account of the Brundtland Report in carrying out its enquiry of the funding and activities undertaken in support of developing countries.

IIED, together with various other NGOs, reviewed the Brundtland Report in 1988 and made recommendations for action by the UK Government and others. This prompted the publication of a response by the UK Government indicating where it stands on the issues raised by the Brundtland Report. IIED and other NGOs saw the Government's response as a useful contribution to the debate on the major issues of our times and prepared a critique of the response. Rather than rehearse the arguments in this submission, IIED draws the Sub-Committee's attention to the "Review" and subsequent "Critique" prepared by IIED and other NGOs. IIED would like to draw particular attention to section 4 of the "Review" paper (Britain and the Brundtland Report) where the question of Overseas Aid is discussed in detail.

It is welcomed that ODA has been showing an increased awareness of the importance of the environment-development link. Its appointment of an environmental advisor is particularly welcomed. Through its Manpower Centre Agreement with ODA (agreed in 1988), IIED has been able to provide environmental advice to ODA on a range of issues and has been able to comment on the environmental implications of a variety of development project proposals being considered for funding. It is apparent that the volume

of environmental work within ODA is dramatically increasing and that there is need for more than a single environment advisor.

In the climate of increasing "environmental awareness" within ODA, IIED greatly welcomes the preparation of the ODA Manual of Environmental Appraisal which is due to be published shortly. It is intended as an operational guide for the use of ODA personnel for use at all stages through the project cycle. IIED has already commented to ODA on the draft version. The manual is comprehensive in its general coverage of issues and environmental relationships and succeeds in providing sufficient detail to enable ODA aid practitioners to understand the complexity of environmental interactions without seeking to be a textbook of ecological processes. It is to be hoped that this manual will have a significant effect within ODA in ensuring that environmental considerations are incorporated in project and programme designs from the outset rather than—as is often the case—being dealt with as afterthoughts.

IIED is also aware that ODA is in the process of preparing a companion manual on environmental considerations for economists. The application of economics theory to environmental problems has been extensively developed in recent years. This has led to a better understanding of:

- the economic functions of ecosystems and their interdependence with economic systems;
- the value of natural environments in terms of their use to humans, their aesthetic functions and their life-support roles;
- the economic cost of environmental degradation and resource depletion; and
- the way in which the structure of incentives in the economy, ranging from property rights to prices and exchange rates, affects resource conservation.

IIED very much hopes that the environment-economics manual will cover these issues effectively and that its introduction will have a significant effect on the way that ODA economists view environmental considerations in the design and evaluation of aid projects and programmes.

30 March 1989

Memorandum by The International Maritime Organisation

The purpose of this note is to give a description in general terms of the policies and activities of IMO aimed at promoting an effective scientific and technical maritime infrastructure in developing countries. To facilitate consideration the discussion is arranged under the following headings. These are: scope and objectives of IMO; strategy for the development of a maritime programme; important new developments; range of concrete projects; financing; co-ordination and co-operation; evaluation and conclusion. Four publications have been annexed, as indicated in the text, to supplement the general presentation.

Scope and Objectives of IMO

The International Maritime Organisation provides the institutional framework for its 133 Member States to co-operate in the following areas:

- Governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade;
- encouragement and facilitation of the general adoption of the highest practicable standards in matters concerning maritime safety, efficiency of navigation, and prevention and control of marine pollution from ships and from ocean dumping;
- dealing with administrative and legal matters relating to the above purposes.

Responsibility for the formulation of the policies and activities to achieve the purposes of the Organisation belongs to the IMO Assembly, which consists of all the Members and meets every two years.

The Assembly and other bodies of IMO have repeatedly noted that effective global implementation of rules and standards can only be achieved if all the governments concerned are both willing and able to apply the agreed provisions. All member governments of IMO are willing to take the necessary measures to apply the international regulations, but not all of them have the resources or technical expertise to do this effectively. To enable these countries, particularly the developing countries, to acquire the necessary capability, the IMO Assembly has accorded the highest priority to maritime training and to a co-ordinated programme of technical co-operation.

Strategy for the Development of a Maritime Programme

Human resource development through training is both the main objective and the principal tool in the technical co-operation programme of IMO. The Organisation and its member governments are convinced that emphasis needs to be placed on training and manpower development, if the developing countries are to become self-reliant in the technical aspects of shipping, ports and pollution prevention.

The maritime industry is very complex and technology has advanced very rapidly. Ships carry highly complex equipment on board and their operation is extremely sophisticated. It is important to develop technical standards, but it is equally if not more important to enable all Member States to apply them. The developing world is willing and anxious to implement them. It is generally recognised that international standards are for the common benefit of mankind, for safer shipping and cleaner oceans. The most difficult problem for developing countries in the implementation of technical standards has been the shortage of advanced maritime expertise.

In this context, IMO has adopted a total global strategy for the development of a maritime programme. It consists of three components, as follows:

- (i) Co-operation with national, regional and subregional maritime training institutions in Africa, Asia and the Pacific, and Latin America. IMO assists in the design and updating of training programmes to bring them into line with the global standards. National institutions are provided with the necessary training materials and literature, and special attention is paid to the training of teachers in modern teaching methods. This is supplemented through consultants and advice on the type of equipment required for training purposes.
- (ii) The World Maritime University, sponsored by IMO, is another essential part of the Organisation's global strategy for training. The University, inaugurated in Malmö, Sweden, in July 1983, provides advanced training for senior specialists from developing countries and also, to a lesser extent, from developed countries.

This unique institution is specially designed to provide training courses for the training of maritime teachers, maritime surveyors, casualty investigators, technical managers of shipping companies; all specialist personnel needed in order to enable developing countries to have a proper maritime administration, and to strengthen the maritime sector.

The inaugural class of the University graduated in 1985, and since then nearly 400 have graduated. Counting current students, more than 600 have enrolled from more than 100 countries since 1983, and it is significant that in the last three years there have also been a growing number of students from developed maritime countries, including Canada, Greece, Spain, Sweden and the Soviet Union. The World Maritime University is widely recognised by the global maritime community as a unique institution providing an education that cannot be obtained anywhere else in the world. It is encouraging to note that WMU graduates are entrusted with highly responsible positions in the maritime administrations of their own countries, replacing in many cases expatriate personnel and helping the country concerned to become self-reliant. This was the very objective which the IMO Assembly had in mind when it resolved to establish the World Maritime University. Many developing countries were deficient in senior maritime personnel and were therefore dependent upon foreign experts whose costs, estimated to exceed US\$100,000 per year, they could hardly afford.

- (iii) The third part of the IMO strategy consists of the development of specialised model courses. Seventy, very specialised, model courses on each important aspect of the shipping industry have been developed and will be implemented in training institutions in the developing world and, hopefully, also in developed countries.

Some of these courses will be used in the curricula of the 10 branches of the World Maritime University which have now been established in Algeria, Brazil, China, Côte d'Ivoire, Egypt, Ghana, India, Mexico, Morocco and the United Arab Emirates.

Important New Developments

A feature of recent years has been the number of seminars, workshops and similar events organised by IMO in countries around the world. Some of these are national, others are designed for the benefit of a whole region and some are international in scope. They can last for a few days or several weeks and they deal with virtually every subject covered by IMO.

The purpose of these meetings is to give the people most directly responsible for the implementation of IMO regulations first-hand, intensive training designed to provide expert guidance on the implementation of IMO measures.

Further advanced learning is also provided by the IMO International Maritime Academy at Trieste, Italy, which has been established under an agreement between IMO and Italy (July 1988). The Academy conducts specialised short-term training courses for students from developing countries. It caters for up to 20 students at a time on three-month courses.

Another important institution is the IMO International Maritime Law Institute in Valletta, Malta. Trained maritime lawyers are essential for the implementation of IMO treaty instruments and the Institute will provide post-graduate training on maritime law to suitably qualified law graduates from all over the world. Half the places will be reserved for women. The Maritime Law Institute is expected to commence operations in September 1989.

Three important publications giving further details of IMO's strategies in maritime training, the integration of women in the maritime sector and the protection of the marine environment were published in 1988.

Range of Concrete Projects

As has been indicated above, the central feature of the technical co-operation activities of IMO is the promotion of national capabilities and self-reliance in shipping. Accordingly, the strategy adopted and the specific goals focus attention on human resources development, the creation and strengthening of training and administrative cadres and institutions, and the acquisition or development of skills and technology necessary to implement the high standards adopted by IMO for maritime safety and control and prevention of marine pollution. Within this context IMO technical co-operation projects cover a wide range of maritime disciplines, all of which are indispensable for the sound development of national merchant marines. These include maritime training, maritime legislation, maritime safety, dangerous and harmful substances, navigation, search and rescue, facilitation of international maritime travel and transport, shipbuilding and shiprepair, planning and development of ports and harbours, multi-modal transport and marine pollution.

The brochure entitled "Technical co-operation within a family of nations" outlines the technical co-operation activities of IMO [*not printed*].

Financing

The programme and activities referred to above have been evolved and implemented with voluntary financial assistance.

Financial support is provided both by multilateral institutions and national governments. Multilateral aid is received from the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP). Direct aid to IMO from individual governments, also known as multi-bi aid, that is aid of a bilateral character channelled through IMO, has been received from the government of Norway, the government of Sweden and the Swedish International Development Authority (SIDA); and many other governments, institutions and foundations.

Channelling aid through IMO has facilitated and ensured substantial progress in the much needed implementation of the international standards and regulations for the improvement of maritime safety and for the prevention and control of marine pollution from ships. It has also enabled the Organisation to assist countries, in particular the developing countries, to give the necessary attention to maritime transport infrastructure and expand their capabilities and skills in this area.

Co-ordination and Co-operation

The Member States of IMO are fully aware of the need to make optimum use of available resources. The Organisation therefore makes a special effort at all levels to co-operate with other organisations, co-ordinate programmes and activities, undertake joint projects where necessary, and avoid duplication of efforts.

As the only specialised agency of the United Nations wholly dedicated to maritime affairs, IMO also seeks in all its activities to contribute to the global objectives and programmes of the United Nations and the agencies and bodies associated therewith. Member States stand to benefit, both in their shipping activities and in their overall programmes for development, from fruitful co-operation between all the agencies and bodies of the United Nations system.

Co-operation is similarly ensured, whenever necessary, with other relevant international, regional and non-governmental organisations.

Evaluation

To look for improvements in its methods of work and to rationalise its operations, IMO has initiated the evaluation of important aspects of its technical co-operation activities. Results indicate there is need for continuity of the technical assistance provided by IMO. Without it, developing countries would find it extremely difficult to cope with the rapid technological change in the maritime industry, particularly in the context of structural changes and hardships caused by the present economic crisis.

The application of evaluation techniques is expected to lead to a more realistic and critical measure of assessment of the efforts of IMO towards the achievement of specific goals. Such an assessment may in turn provide the stimulus for much needed greater financial support of the technical co-operation activities of the Organisation.

Conclusion

In adopting directives and guidelines for the implementation and evaluation of its technical co-operation activities, IMO is conscious that inadequate infrastructure hampers national and international development efforts. Redressing deficiencies in their technical maritime infrastructure enables countries to better organise and co-ordinate their overall development. Thus, by promoting the continuous improvement of the institutional and technical infrastructure in the shipping sector, IMO helps developing countries to better meet

essential objectives such as a greater participation in the world shipping tonnage and a higher degree of diversification of shipping services.

Since trade is of vital importance to development, the shipping sector, as the veritable life blood of world trade, is of crucial importance to economic development and international prosperity in a clean ocean environment. Accordingly, the technical co-operation programme and activities of IMO aim to assist the developing countries in their own efforts to advance their position in shipping and related technical matters. IMO is convinced that strengthening the capacity of these countries to become self-reliant in the technical aspects of shipping is a proven policy which has demonstrated its suitability to facilitate and promote the universal implementation of the global rules, regulations and standards adopted through the Organisation.

May 1989

Letter from the International Pesticide Application Research Centre

A letter requesting written evidence to the Select Committee in relation to overseas aid came to my attention. I would like to make the following comments based on over 12 years experience in Africa and many overseas visits since 1972.

Much is done to assist small-scale farmers, but to achieve important results depends on a sustained effort and this is often difficult with short-term contracts. For example the United Kingdom made a significant contribution to cotton research in Africa until 1975. Then with the demise of the Cotton Research Corporation, there has been an alarming decline in the quality and production of cotton throughout Africa except in the Francophone countries and Zimbabwe.

Cotton is a significant crop for the semi-arid tropics but much of the expertise in the UK in plant breeding, entomology and agronomy has not been available in comparison with continued strong support by the Institut de Recherches du Coton et des Textiles in France.

Apart from the need to sustain research effort over at least a decade, implementation of research results must be fully integrated with extension and commercial interests so that the farmer benefits at village level. The UK can provide advanced technical skills and equipment that is appropriate to the small-scale farmer—for example in genetic engineering, electrodynamic spraying and solar energy, but at present there is inadequate co-ordination of efforts.

While we should participate in multilateral aid, bilateral aid is to be preferred as this is clearly recognised as a contribution from the UK.

Dr. G A Matthews
Reader in Pest Management
27 February 1989

Memorandum by the Ministry of Defence

METEOROLOGY

1. INTRODUCTION

1.1 All activities undertaken by the Meteorological Office (the Office) which might be described as “scientific and technical aid to developing countries” are part of a collaboration with other National Meteorological Services (NMSs), in which each acts in the interests of its own country.

1.2 Weather systems and the distances they move during their lifetimes are larger than nations so that meteorologists are necessarily internationally interdependent. So as to meet its own national commitments, the Office runs a mathematical model, on its supercomputer, of the whole global atmosphere. The model needs a regular and timely supply of accurate, representative and suitably located observations from the whole globe. In their turn, many less developed countries depend on products from our supercomputer. The World Meteorological Organisation (WMO) provides the forum in which this constructive living together is brought about.

1.3 “Aid” may be split into two main categories.

Direct —under the Voluntary Co-operation Programme (VCP) of WMO and
—under the World Weather Watch (WWW) programme of WMO, and

Indirect—through use of facilities, acceptance of familiarisation visits, on the job training, consultancies and maintenance of the international system.

1.4 The funding of Direct "aid" is explicit in Ministry of Defence votes. Just over £1 million is involved. The costs of Indirect "aid" are less clear. Where for instance a facility exists for our own purposes, no charges are raised for its use and for the provision of services where these do not involve extra cost. Such assistance oils the wheels of the international machine, which it is in our interests to maintain, and helps promote Britain as a leader in meteorology.

2. RESEARCH

2.1 No research is done in the Office specifically for the benefit of developing countries (DCs). However some spin-offs from research for national purposes are relevant to them. For example, the large scale El Nino effect in the Pacific Ocean has global implications and the global pattern of sea surface temperatures is related to drought in the Sahel.

2.2 Scientists from DCs sometimes work in the Office on problems of common interest. Usually arrangements ensure visitors stay long enough in a particular branch to contribute significantly to its work. This prepares the ground for subsequent similar visits and means that no charge need be made, even when, for example, computer time is used. (Such visitors usually require sponsorship to cover their air fares and to provide a basic subsistence allowance.) In 1988 these, and shorter visits, took four man-months to arrange.

3. TRAINING

3.1 Much of the Office professional training is carried out at its own College at Shinfield Park, near Reading. Meteorologists from NMSs overseas are welcome when places are available. The College recovered £100K of its costs in this way in 1987. In the past 10 years students have come from 77 countries and have typically taken up 300 student-weeks of training each year. Courses are paid for at cost and may be funded by the student's own NMS; by the UN Development Programme; by WMO; by the British Council; occasionally by a third country; or by the Office as part of the VCP.

4. PROVISION OF SPECIALIST EXPERTISE AND FACILITIES

4.1 As well as formal courses, expertise may be made available in at least four ways:

- on the job (paid for by a sponsor, at cost);
- by providing facilities for visiting scientists (see 2.1 above);
- by providing experts to the DC (official time and expenses are usually paid for by a sponsor);
- by providing experts as Rapporteurs or members of Working Groups in areas of meteorology where both Britain and DCs have an interest. (WMO often pays air fares; the Office pays for a subsistence allowance and the official's time.)

5. OBJECTIVES

5.1 The sharpest single objective is to improve or, at worst, lessen any deterioration in the number of observations available for use in the Bracknell global model. This breaks down into two other objectives:

to improve the WWW, through the provision of

- observing equipment,
- telecommunications equipment, and
- training related to the operation and maintenance of this equipment;

to help NMSs provide better services to their countries, and so attract more funds from their own governments to support their own observational and telecommunication facilities for the benefit of the whole world community, including Britain.

5.2 The following principles and factors are taken into account.

5.2.1 Broad strategies contained in the report of the meeting of the Commonwealth Heads of Government held in Vancouver, 1987, viz

- (a) The need to give special support to small states, eg the sub-Saharan countries.
- (b) The use of the concept of "seed" money to encourage other countries to donate to particular large projects.

5.2.2 The WMO Second Long Term Plan, 1988–1997, and the WMO document "A Strategic Approach to Technical Co-operation in Meteorology and Hydrology".

5.2.3 The Meteorological Office VCP (Equipment and Services) Four Year Plan.

5.2.4 The need of NMSs for particular items of equipment and training, under three categories:

- (a) Emergency: to maintain essential WWW facilities.
- (b) Consolidation: replace old equipment.

(c) Improvement.

5.2.5 The ability of NMSs to generate and exchange data, ie good local management, an adequate local infrastructure, availability of consumables, spares, appropriate power supplies, trained operators and technicians. Consumables are not usually provided.

5.2.6 Technical support. Even NMSs able to operate and maintain equipment may need help to instal it and some initial training in its operation and maintenance. Major items of equipment are provided only when appropriate technical support is available from Britain or elsewhere.

5.2.7 Co-ordination with other donors, (eg other countries under VCP, UNDP, WMO and ODA), especially through an informal annual meeting of Major Donors to the VCP. There are some traditional partnerships, eg Britain and Commonwealth countries, USA and the Americas, France and francophone Africa, but VCP is not limited to such links. Directors of Western European NMSs are also beginning to take a more co-ordinated view.

5.2.8 Equipment should be the most appropriate for the function and best value for money. Advice is sought from relevant branches of the Office. Where British (or EC) and foreign equipment are equally satisfactory, then British (or EC) equipment is provided.

5.2.9 Training objectives are:

- (a) to overcome shortages of trained staff which restrain countries from fully meeting their meteorological responsibilities;
- (b) to transfer knowledge and proven methodologies to enable countries to implement, and benefit from, WMO programmes;
- (c) to increase the awareness of national authorities, institutions and bodies, of the potential benefits of meteorology through activities directed to users of services.

5.3 Objectives are met very effectively. Factors 5.2.5–5.2.9 above play a large part in this. Observations to arrive from all parts of the world in time for use in the Bracknell model. However Africa is only poorly covered, despite its having been regarded as a priority area for assistance. (A new co-ordinated approach to the African problem is beginning to emerge, with participation of the World Bank, Economic Commission for Africa and others at a funding level, and the WMO Secretariat and interested countries such as Britain, at a technical level. Observations will often be collected by satellite, by-passing inadequate local telecommunication lines, and meteorological products from advanced centres, such as Bracknell, will be distributed that way. See 6.3.1 and 7.4 below.)

6. HOW ARE PRIORITIES IDENTIFIED AND PROJECTS EXECUTED AND EVALUATED?

6.1 *Priorities*

These are determined in the light of the objectives, set out in section 5. Identification is often helped by personal contact with Directors of NMSs in developing countries. Officership of WMO and membership of the Executive Council also provide opportunities for the Director-General of The Meteorological Office and staff accompanying him to interact with Directors who, in the main, are elected as representatives of Regional interests. Mostly, though, final decisions are made after discussion with the WMO Secretariat, who are taking an increasingly co-ordinated view and are proving competent at it.

6.2 EXECUTION

6.2.1 *Equipment and services*

Some projects are executed by the Office staff. A small group in the International and Planning branch administers them in the light of advice from expert branches. Some equipment is installed by the recipient NMSs and some by the Office technicians.

6.2.1.1 So-called “Co-ordinated projects” are large enough to need funds from several donors: they are executed by the WMO secretariat. They simplify maintenance and training. Especially in the fields of information technology and telecommunications, they also allow similar hardware and software to be provided to a number of countries. The Office specifies the equipment to be bought with British funds and which NMSs should receive it, and passes the money to WMO. The Secretariat procure, often with advantageous discounts, and arrange installation and training. Frequent personal contacts with the Secretariat monitor such projects and ensure that the money is spent properly.

6.3 EVALUATION

6.3.1 *Equipment and Services*

Projects involving the direct donation of equipment are evaluated by monitoring the subsequent receipt of observations at Bracknell. Other information is obtained by informal contacts with Directors at international meetings. Co-ordinated projects are monitored by the WMO Secretariat, encouraged by all donors. At present a formal evaluation is being made of a pilot study of the suitability of satellite communication in Africa: equipment and funds have been provided by Britain, America, the Federal Republic of Germany and France to 14 African countries.

6.3.2 Training

The Secretariat routinely evaluates the training of Fellows. There is appropriate feedback to donors and providers of training. Additionally the Office recently evaluated all 123 Fellowships funded under VCP between 1970 and 1987. Apart from the few avoidable losses (retirement, death) only 16 per cent of Fellows have been lost to meteorology in 18 years. (The Office lost 33 per cent of comparable staff in 10 years.)

7. TRENDS IN POLICY

7.1 In his Ministerial statement to the Conference of Commonwealth Meteorologists in 1985, Mr John Lee MP said that he “hoped it may prove possible to give ... increased support under the voluntary Co-operation Programme of WMO”; this has been implemented, in a time of inflation and great constraint, by maintaining the same number of Fellowships for training on broadly the same courses, or even to increase the number somewhat; in the past four years, the provision of equipment and services too has at least kept pace with inflation.

7.2 Opening a WMO Symposium in July 1987, Mr Timothy Sainsbury MP¹ said that support under the VCP would continue to match changing circumstances.

7.3 This flexible approach seems entirely appropriate, particularly now that the Office has a global role, and an increasingly commercial approach. No longer are we just maintaining the world system, good though that is for a nation with a declared foreign policy objective of upholding international law and order: we are also helping in a very direct way to ensure a regular and timely supply of our raw material.

7.4 Another desirable trend is towards ensuring that our efforts are co-ordinated with those of other countries. See 5.2.7, 5.3 and 6.2.1.

8. ADAPTATION OF AID TO THE NEEDS OF RECIPIENT COUNTRIES

8.1 The needs of NMSs throughout the world are very similar. A large proportion of the same core effort is needed whatever the final application of the NMS's output. Consequently, in general, meteorological “aid” is particularly well adapted to the needs of recipient countries.

8.2 Individual requests under the VCP are considered by formerly practising meteorologists in the Secretariat of WMO. They are then considered by experts in the relevant discipline within the Office and often by staff who have visited the country in question and know some of the recipient country staff personally. Where possible, follow-up visits ensure that “aid” is used effectively.

9. THE RESPECTIVE MERITS OF BILATERAL AND MULTILATERAL FUNDING OF SCIENTIFIC AND TECHNICAL AID

9.1 The co-operation that meteorologists know is mutually beneficial and world sustaining is best not described as “aid”. However accepting that any transfer of funds may be seen as “aid”, WMO provides a forum through which the “aid” can be paraded in a way which preserves national honour. Most paperwork for “aid” provided by the Office is handled through the Secretariat of WMO; but there is usually direct contact between the Office and the NMS in the recipient country.

9.2 The Office contributes £20K to the VCP Fund of WMO each year to be administered by the WMO Secretariat and so regarded as being multilateral “aid”. It remains under the direction of the executive Council, where we have a voice. Donor Members keep the Fund small because of earlier doubts about the value for money of multilateral funding. Today this small fund allows the Secretariat to take occasional emergency action and to plug gaps left between UNDP and VCP (bilateral) projects.

9.3 Whether aid for meteorology is bilateral or multilateral, it needs to be co-ordinated with that of other donors. See 5.2.7, 5.3, 6.2.1.1 and 7.4 above. Because NMSs have problems in common, “Co-ordinated projects” sometimes lead to appropriate solutions which would not have occurred to individual Directors. “Co-ordinated projects” also give some of the benefits of multilateral aid (larger scale projects being made possible, economies of scale, no duplication of effort) without sacrificing control of expenditure by the donor, which is the main advantage of a bilateral arrangement.

HYDROGRAPHY

1. The Royal Navy maintains a hydrographic surveying flotilla consisting of seven vessels and some 550 personnel for the purpose of carrying out hydrographic and oceanographic surveys for the benefit, primarily, of RN operations: some work in support of UK civil shipping requirements is also undertaken on the sponsorship of the Department of Transport.

2. The RN Hydrographic Department maintains a series of worldwide Admiralty Charts and Publications, to update which it needs constant access to a wide range of hydrographic data for all parts of the

¹Parliamentary Under Secretary of State for Defence Procurement.

globe. The greater part of such data are supplied by the free exchange among nations which takes place under the aegis of the International Hydrographic Organisation (IHO): the balance, which relates largely to the RN's military requirements, is generated by new surveys carried out by the surveying flotilla or civil vessels on charter to the RN.

3. The Hydrographer also provides, within the constraints of the resources at his disposal, aid and assistance to developing countries. This support may be divided into four categories:

- (a) Loan of RN personnel on long-term appointments to local hydrographic organisations or to supervise indigenous surveyors until they have the necessary experience to stand alone;
- (b) Visits by senior staff to advise on the setting up or improvement of local hydrographic capabilities;
- (c) Hydrographic surveys by RN ships and the provision of short on-job training for local surveyors;
- (d) Training at the RN Hydrographic School for surveyors from developing countries.

In recent years, assistance under one or more of the above headings has been given to Fiji, Bahrain, UAE, Sudan, N. Yemen, Kenya, Oman, Nigeria, Malaysia, Gambia, Indonesia and the Caribbean Islands. Annex A gives further details.

4. Such aid and assistance is financed either by the country itself or by the Foreign and Commonwealth Office or Overseas Development Administration. In addition, under certain circumstances the Ministry of Defence may itself waive or abate charges for assistance provided. Money is not, however, the only resource involved: any assistance to developing countries necessitates the diversion of ships and personnel of the RN hydrographic flotilla from their primary tasks. This latter constraint inevitably limits the amount of aid that can be given irrespective of the funding available.

5. It is in the Hydrographer's interest to promote the development of hydrographic capabilities around the world. As stated above, the maintenance of Admiralty Charts and Publications depends on the supply of hydrographic data by other countries relating to the seas around them. It is therefore to the Hydrographer's longer-term advantage to foster the efficiency and professionalism of other hydrographic offices, particularly those concerned with little-known and developing parts of the world. His objective in providing assistance within his resources may therefore be said to be to help the developing country to build up its independent surveying and charting expertise to the stage when it can stand alone and contribute both to the development of its own resources and to the safety of all mariners using its waters.

6. The Hydrographer usually obtains his first indications of the need for an aid project through personal contact either via the IHO, or through the local British Naval Attache. An appropriate and achievable level of assistance is determined informally between him and the survey or marine authorities in the recipient country. Only then are the aid authorities approached and formal government to government measures initiated. In this way grandiose projects which would strain both Hydrographer's resources and the aid agencies' funds can be avoided. All potential aid projects have naturally to be considered both within the framework of HMG's priorities for overseas development assistance and against competing demands for resources both on the Hydrographer and on the country concerned.

7. UK hydrographic assistance, with UN backing, to Fiji and Trinidad has led to the formation of two competent hydrographic organisations, which are now printing their own charts and contributing to the world-wide exchange of data. In Malaysia, Singapore and Malta the hydrographic units are staffed by professional personnel trained at the RN Hydrographic School. Every effort is made to attune RN advice and training to the needs and capabilities of recipient countries. Sophisticated equipment can be difficult to maintain in third-world conditions and requires foreign currency expenditure on maintenance and spares. The assistance which the Hydrographer gives is therefore tailored to have regard for such longer-term considerations.

8. It is Hydrographer's experience that most aid agencies, be they national or international, prefer to fund specific projects themselves, so that they are seen to contribute in a positive way. Conversely, most recipient countries prefer to diversify their sources of funding so that they are not seen as the exclusive clients of one country or agency. In hydrographic projects, which tend to be of a long term nature, it is quite usual for the basic funding for the initial setting up of the hydrographic office to be provided from one source, and for ships, equipment and training to be amassed over a period of years from a wide variety of sources.

ANNEX

DETAILS OF HYDROGRAPHIC AID

A. LONG TERM PROJECTS

Fiji

Since 1979 a series of RN Lieutenant Commanders have been loaned to Fiji to head the country's hydrographic unit. From a very small unit successive officers have recruited and trained staff until, within the next three years, a Fiji officer should be ready to take over as the head of an efficient hydrographic

unit. Though the initial impetus and the funding of the RN officer has been from UK (ODA and MOD), aid for equipment and ships has come from the UNDP, Australia and New Zealand, and personnel have been trained in Australia and New Zealand as well as in UK.

Trinidad and Tobago

Hydrographer has been involved with the Trinidad and Tobago Hydrographic unit since it was set up with UNDP assistance in June 1982. He has conducted regular correspondence with its officers and supplied historical data from the Taunton archives. In 1982 an officer of the Trinidad and Tobago Coastguard completed the Hydrographic Basic Course at the Royal Naval Hydrographic School and a subsequent period of sea training in one of HM Surveying Ships. In return Hydrographer is supplied with copies of surveys carried out by the Unit for incorporation in British Admiralty Charts. Earlier this year the Unit published its first chart and sent a copy to Hydrographer for comment. With Hydrographer's encouragement Trinidad and Tobago have now joined the International Hydrographic Organisation.

B. ADVISORY VISITS

Bahrain

In 1982 Hydrographer sent a senior officer to Bahrain for a 14 day visit to advise on how a hydrographic surveying and charting organisation could best be set up. The visit and subsequent report found the basis for a state hydrographic organisation which has now been running, led by retired RN surveyors, for six years. Hydrographer has assisted also with advice—for example on specifications for aerial photography for charting.

United Arab Emirates

In 1986 another senior officer visited Abu Dhabi for seven days to advise the UAE military survey department how to establish a hydrographic capability to survey and chart their coastal waters. This advice led to the use of UK private hydrographic consultants (ex-RN) to take the matter on from there.

C. SHIP SURVEYS

<i>Sudan</i>	1982	Marsa Kuwai Suakin
<i>North Yemen</i>	1981	Approaches to Hodeida
<i>Oman</i>	1981	Approaches to Wudam
	1982	Southern Approaches to Masira
	1983–84	As-Sib to Jazirat Fahl
<i>United Arab Emirates</i>	1988	Approaches to Fujayrah
	1989	Mina Rashid, Dubai
<i>Kenya</i>	1985–86	Approaches to Mombasa Kilifi Lamu
<i>Gambia</i>	1981	River Gambia—Banjul
<i>Caribbean</i>	1980	Barbados
	1980–81	Yucatan Channel
	1981	Turks and Caicos Islands
	1982	British Virgin Islands
	1983	Nicaraguan Rise
	1984–85	Antigua Montserrat St Lucia St Vincent
	1988–89	Belize

D. TRAINING AT THE RN SCHOOL OF HYDROGRAPHIC SURVEYING

Training of personnel from several developing countries is regularly carried out at various levels. Listed below are the numbers trained on the Officers' Long Course, Officers' Basic Course and the Petty Officer Surveyors' Course since January 1980.

<i>Country</i>	<i>Long Course</i>	<i>Basic Course</i>	<i>PO(SR) Course</i>
Kenya	—	3	1
Nigeria	1	5	—
Malaysia	16	6	3
Gambia	—	2	—
Indonesia	3	5	—
Pakistan	2	5	—
India	1	—	—
Trinidad and Tobago	—	1	2
Singapore	1	—	—
Malta	1	—	—
Algeria	—	2	—
Egypt	1	—	—
Jordan	—	2	—
Saudi Arabia	—	1	—
Barbados	—	1	—
Fiji	1	—	—
	27	33	6

Training of cartographers at Hydrographic Department Taunton since 1980.

<i>Country</i>	
Solomon Islands	1 trainee for 3 months
Brunei	1 trainee for 3 months

April 1989

Memorandum by the Natural Environment Research Council

1. Summary

1.1 NERC supported scientists from NERC institutes and Higher Education Institutions (HEIs) are involved in a wide range of research and training projects in developing countries, these comprise:

- (i) research funded from the Science Budget which, because of its scientific aims, must be carried out in a specific area (eg a developing country) and which is judged primarily on its scientific merit;
- (ii) research, development and training projects aimed at development aid objectives and which are funded by various UK and overseas national and private sector bodies.

Examples of these different projects are provided in the main body of the NERC evidence.

1.2 The development aid projects undertaken by NERC are carried out in close consultation with the sponsoring agencies and in most cases with direct participation of scientists from the country concerned. In a number of cases (eg ODA) periodic meetings are held with major sponsoring agencies to review progress across a whole sector of activity involving many individual projects and to assess future requirements and priorities. Such meetings are important for NERC so that manpower, equipment and planning requirements can be addressed at an early stage.

1.3 The pattern through which aid is provided is changing as a result of:

- (i) the growth of multilateral aid agencies and the need to ensure balance and complementarity with national agencies;
- (ii) the increasing awareness of environmental issues at both the global (climate change) and local (impact assessment) scales;
- (iii) the growing complexity of many aid-related projects with increasing demands for scientific and management skills, equipment and computing facilities;
- (iv) the growing sophistication of scientists and planners in developing countries and their desire to be an integral part of the decision making process.

1.4 The developments in the patterns of aid provision outlined above call in turn for changes in the way that national decisions on development aid are made. Areas where improved arrangements should be sought include;

- (i) the development of a national policy for overseas aid that addresses such issues as the roles of national and international aid agencies, the complementarity of bilateral and multilateral aid programmes and the inter-relationships between development aid and local and global environmental issues;

- (ii) the introduction of mechanisms for the provision of funding for “scientific aid” that aims to study the environmental implications of aid projects, to strengthen the scientific infrastructure of developing countries and to ensure the active participation of developing country scientists in international science programmes;
- (iii) the strengthening of training arrangements that are consistent with a national policy and which include adequate follow-up mechanisms to ensure that future scientific and commercial opportunities are nurtured and developed.

2. *Introduction*

2.1 The Natural Environment Research Council (NERC) has responsibility for planning, supporting and carrying out research in the physical and biological sciences leading to an understanding of the properties and processes of the environment. The interactions of man and his surroundings can only be understood through such studies which also provide the means for developing sensible policies for the exploitation of natural resources.

2.2 This is a broad remit, covering research on the solid earth, terrestrial, freshwater and marine environments, and the atmosphere, as well as a major research programme in the Antarctic. It involves a wide range of disciplines, including geology, geophysics, chemistry, physics, biology, ecology and mathematics. The research extends continuously from the most basic through strategic to applied, the latter carried out largely on contract to Government Departments or private industry in the UK and overseas.

2.3 NERC funds research with Science Budget money at its own Institutes and Grant-Aided Associations, at units established at Higher Education Institutions (HEIs) and at HEIs. Research in NERC establishments is supported largely through the three Science Directorates (Earth Sciences; Marine Sciences; Terrestrial and Freshwater Sciences) which all fund programmes of collaborative research involving Institutes and HEIs. The NERC Special Topic Programmes are for collaborative research at HEIs and Institutes in areas where “pump-priming” is needed. A list of NERC institutes is given in Annex 1.

2.4 Funding of “responsive mode” grants (unsolicited research proposals) and post-graduate training awards is through NERC’s Higher Education Section. In addition there is considerable indirect support to HEIs through provision of central support facilities by NERC Scientific Services, by subscriptions to major international programmes, and by subcontracting elements of major commissions.

2.5 Whilst maintaining its commitment to high-grade science, and to the use of the Science Budget for fundamental and strategic research, NERC places considerable emphasis on its relationship with the market and obtaining contract income for appropriate strategic and applied work. It regards this as a duty for publicly funded research organisations and as a valuable stimulus to problem-oriented science.

2.6 NERC maintains a continual review of its policy and strategy for research through Council and its committees, and through the corporate planning process. Priorities are defined using the ABRC criteria of scientific excellence, pervasiveness and timeliness, and, where appropriate, with regard to exploitability, applicability and significance for education and training. Decisions on allocation of Science Budget funds are reached using peer and merit review systems that bring together a wide range of expert opinions from academia, research institutes, industry and Government Departments.

2.7 In 1987–88 NERC had a total income of £106 million of which £73 million (69 per cent) was from the Science Budget. The remaining £33 million (31 per cent) comprised commissioned research receipts from Government Departments and private industry from both the UK and overseas.

3. *NERC and Overseas Aid*

3.1 NERC participation in overseas aid research and training programmes is supported through commissions from Government and industry both from the UK and overseas. NERC supports a strong research marketing capability to identify opportunities for commissioned work and to ensure consistency in bidding and charging policies. NERC took the lead in setting up the Research Councils Europe Office in Brussels with the specific aim of increasing the participation of UK environmental scientists in EC-led programmes including development aid. In the recent past NERC has employed contracted agents in Washington and the Philippines to raise the Council’s profile with Development Banks and overseas national governments. Today NERC employs under contract an International Commissioner charged with the task of identifying future opportunities for overseas commissioned work.

3.2 The activities carried out by NERC under the general heading of overseas aid fall into a number of categories:

- (i) Research and development.
- (ii) Training.
- (iii) Support for surveying and mapping.
- (iv) Development of basic infrastructure within overseas institutions.

(v) Advice and consultation.

3.3 NERC supports a number of research activities undertaken overseas from the Science Budget. Although these are not aid programmes as such they fulfil the functions of underpinning future aid programmes for which external funding may be sought, and establishing working links with scientists in developing countries. Examples of NERC Science Budget supported projects currently being undertaken by UK Higher Education Institutions (HEIs) are included in Annex 2. It is important to note that these projects are all peer reviewed for scientific excellence in competition with UK-based HEI research grant proposals.

3.4 The support for postgraduate training provided by NERC enables aid agencies such as ODA to recruit the qualified staff needed to manage their aid projects. Developing country nationals acting as local project leaders are increasingly graduates themselves and this in turn increases the demand from the aid agencies for supervisors holding postgraduate qualifications.

3.5 NERC undertakes a wide range of overseas aid projects under bilateral and multilateral arrangements. These activities assist with resource evaluation and long-term national planning, and provide a basis for technology transfer and the training of local environmental scientists. Examples of overseas aid and training projects currently underway in NERC are given in Annex 2. The NERC Institute of Terrestrial Ecology (ITE) offers services in the specific area of tropical forestry.

3.6 Details of the NERC FY 87/88 income generated from overseas aid related programmes are summarised in Table 1. Income from ODA is increasing whilst at the same time income from industry for aid programmes is falling. The reduced level of support from industry (eg NERC as a sub-contractor in an industry-led project) is thought to be due to increased international competition, and the need for industry to rationalise project teams and to minimise costs and overheads.

Table 1 NERC Income from ODA and EC Aid Programmes (£M)

	1985-86	1986-87	1987-88	1988-89
ODA	3.21	3.41	4.25	4.72
EC	0.03	0.03	0.04	0.25

4. Objectives of UK Scientific and Technical Aid to Developing Countries

4.1 NERC involvement in overseas aid is through commissions from external bodies. Accordingly, as a contractor, Council does not have specific policy or programme related objectives that are directly linked to the aid programme or the country in which it is carried out. NERC does, however, have criteria that have to be met before a commission is accepted, in particular:

- (i) the work falls within the remit of the NERC charter;
- (ii) the scientific, survey or training content of proposed programme is of an adequate quality and where possible fits into our own science strategy;
- (iii) the remuneration to NERC is fair for the work involved and fully covers the costs.

4.2 NERC follows guidelines set by Central Government in setting the minimum level for charges to avoid unfair competition with industry. In many cases NERC will join with industry in bidding for overseas aid contracts and, where the bids are successful, in their implementation.

4.3 Notwithstanding our role as contractor, NERC does see a clear need for national policy objectives in the aid that is given to developing countries, in particular:

- (i) there must be commitment and benefit on both sides;
- (ii) there needs to be continuity in aid provision so that relationships can be built up and appropriate follow-on actions taken;
- (iii) considerable care is needed to ensure that development aid does not create future environmental problems or penalties. Properly conducted Environmental Impact Assessments (EIAs) must be an essential feature of major aid projects;
- (iv) issues of climate change and global environmental research affect both developed and developing nations. There is a need, therefore, for "Scientific Aid" to developing countries to supplement existing Development Aid arrangements.

5. Setting Priorities and Evaluating Results

5.1 Priorities for technical cooperation are set by the aid agencies usually in consultation with recipient governments. In a number of cases NERC scientists are called upon:

- to give advice on future projects;
- to draw up costed project plans with agencies in the recipient countries.

5.2 Research and development priorities are, in the case of ODA, established on socio-economic considerations. NERC and others submit research proposals to ODA based on these criteria.

5.3 NERC-supported research funded from the Science Budget undergoes a rigorous programme of assessment that covers the appraisal (selection), monitoring and evaluation (output) stages of a project. Peer and merit reviews are applied at the project selection phase to judge scientific excellence and where appropriate the potential for application and exploitation. Internal project management and scientific audit carried out by outside experts ensure that ongoing work is adequately monitored and managed, and that the effectiveness of the supporting infrastructure is sound. The evaluation of the results of research by external referees and the use of newly developed methods of evaluating research output ensure that issues of productivity and value for money are addressed. In a number of cases NERC scientists monitor the execution of technical co-operation projects for ODA.

6. *Changes in UK Policy*

6.1 UK policy is largely based on the perceived needs of developing countries.

6.2 Over the last 10 years there have been a number of shifts in UK policy in the provision of technical assistance, in particular:

- (i) A decrease in large broad brush resources surveys;
- (ii) An increase in:
 - training projects directed towards particular fields (eg interpretation of geophysical and geochemical data, deep geology in the Earth Sciences area);
 - small defined projects requiring particular expertise, eg hydrogeological, hazard prediction, urban planning and social improvement;
 - assistance in setting up of commodity and general databases.

6.3 Most of the trends set out in 5.2 above have occurred in response to the immediate and medium-term demands of overseas governments in support of strategies directed at rapid economic growth and social development. It is desirable that attention still be given to wider ranging surveys, and appraisals designed to assess the full spectrum of earth resources and environment. Advantage should be taken of new techniques in regional surveying, and in the integrated interpretation of data.

6.4 The emphasis that is now given to focused objectives in specific subjects or programmes works against such important issues as the environmental implications of aid programmes, on climate change and other regional/global problems. The developing countries have a role in global environmental research and new initiatives directed towards “scientific aid” are needed that enable scientists from developing countries to fully participate in international science programmes. Such regional and global issues are important to developed and developing country alike so that the provision of scientific aid produces real commitment from both sides.

7. *Needs of Recipient Countries*

7.1 NERC scientists are involved in a large number of aid projects spanning many countries. In addition Science Budget support is provided for research projects carried out in the developing countries. NERC also contributes to international regional and global research programmes that number developing country scientists amongst the participants.

7.2 The contacts provided by these different types of programme give NERC supported scientists a wide knowledge and understanding of the needs of developing countries. As an example the BGS Overseas Directorate staff have accumulated several hundred man years residential service in developing countries and as a result are alert to local sensitivities and needs, and the constraints which apply to implementing aid programmes.

7.3 Reduction in Science Budget support across the board has led to an erosion of the bilateral ties that are essential to underpin future aid projects and to promote co-operation with scientists in developing countries. As an example the NERC Unit of Comparative Plant Ecology (UCPE) has set up the Integrated Screening Programme (ISP) designed to provide expert profiles of ecologically or economically important crops, weeds or threatened plant species. ISP contributes to the establishment of international comparative baselines of plant sensitivity to soil and climatic variables, pollutants and management factors. It is specifically designed to enable ecologists from overseas to visit UCPE, bringing their seeds with them and then, under supervision, apply the ISP experimental tests. Collaboration with developing countries through the ISP is on an *ad hoc* basis and is currently severely limited by the reduction of potential supervisors from five to four and the pressure to seek commercial contracts.

7.4 Many students from developing countries wish to come to NERC sites and HEIs to conduct all or part of their postgraduate studies at both MSc and PhD levels. The links established during training often provide the foundation for future scientific and commercial co-operation. It follows that UK support for training should be strong and consistent with adequate follow-up mechanisms to ensure that future opportunities for close and productive ties are nurtured and developed.

8. *Bilateral and Multilateral Funding*

8.1 In many cases overseas governments prefer to receive technical assistance on a bilateral basis, since Government to Government agreements allow for better planning, management and monitoring of technical programmes.

8.2 Institution building is the most important aspect of bilateral co-operation and counterpart training is a major part of this. Multilateral programmes do not give the same emphasis to on-the-job counterpart training and relationships between project experts and counterparts are never as productive as under bilateral programmes.

8.3 Multilateral funded programmes are perhaps better able to address problems on a regional or global basis. UN organisations and international development banks are more acquainted with such large area problems, can best assess needs and remedies, and generally have the capacity to run programmes on a long-term and internationally co-operative basis.

8.4 Since the availability of bilateral funding is generally limited in amount the larger more expensive projects such as country-wide airborne surveys and institutional restructuring are best carried out by multilateral agencies.

April 1989

ANNEX 1

NATURAL ENVIRONMENT RESEARCH COUNCIL

LIST OF NERC INSTITUTES AND UNITS

BAS	British Antarctic Survey
BGS	British Geological Survey
DML	Dunstaffnage Marine Laboratory
IFE	Institute of Freshwater Ecology (from April 1989)
IH	Institute of Hydrology
IOSDL	Institute of Oceanographic Sciences Deacon Laboratory
IOV	Institute of Virology
ITE	Institute of Terrestrial Ecology
NSS	NERC Scientific Services
NUTIS	NERC Unit for Thematic Information Systems
PML	Plymouth Marine Laboratory
POL	Proudman Oceanographic Laboratory
RVS	Research Vessel Service (NSS)
SMRU	Sea Mammal Research Unit
UCPE	Unit of Comparative Plant Ecology
WRSRU	Water Resource Systems Research Unit

ANNEX 2

EXAMPLES OF NERC PARTICIPATION IN OVERSEAS AID ACTIVITIES

<i>Project</i>	<i>Institute/HEI</i>	<i>Funding</i>
1. <i>Research and Development</i> (Science Budget)		
1.1 Modelling of the Asian Summer monsoon	Reading University	NERC
1.2 Role of trees in the nutrient cycling in tropical agroforestry intercropping	Cambridge University	NERC
1.3 Accelerated soil erosion in tropical Mexico	Oxford University	NERC
1.4 Comparative reproductive physiology of the Rhinoceros	Zoological Society	NERC
1.5 Impact of selective logging on primate socio-ecology in Malaysia	Cambridge University	NERC
1.6 Mobility of gold in soil profiles of tropical rain forests	Southampton University	NERC
2. <i>Research and Development</i> (Externally Funded)		
2.1 Geological studies applied to mineral resource evaluation	BGS	ODA
2.2 Microcomputer applications in geology	BGS	ODA
2.3 Development of geochemical field	BGS	ODA
2.4 Impact of tropical/sub-tropical agriculture on groundwater quality	BGS	ODA
2.5 Tropical forestry and agroforestry	ITE	ODA
2.6 Plant growth in semi-arid environments	ITE	BC/ODA/UNESCO

<i>Project</i>	<i>Institute/HEI</i>	<i>Funding</i>
2.7 Applications of remote sensing to hydrology	IH	ODA/BNSC/ESA
2.8 Energy balance of the Sahelian savannah	IH	ODA
2.9 Research into drip irrigation of sugar cane	IH	ODA
<i>3. Development Aid Projects</i>		
3.1 North Sumatran geochemical and mineral exploration project	BGS	ODA
3.2 Mineral potential of metamorphic rocks (Ecuador)	BGS	ODA
3.3 Exploration for geothermal energy (Kenya)	BGS	ODA
3.4 Genetic improvement of tea (Malawi)	ITE	ODA
3.5 Improvement of tropical trees	ITE	Shell/World Bank/ODA
3.6 Hydrology of proposed Linggiu Dam (Malaysia)	IH	Binnie and Partners
3.7 Review of 1988 floods in Sudan	IH	ODA/World Bank
3.8 Commercial fish resources (Venezuela and Bangladesh)	DML	EC
<i>4. Training</i>		
4.1 Field mapping training (Jordan, Egypt and Malawi)	BGS	ODA
4.2 Cali mineral exploration and training project (Colombia)	BGS	ODA
4.3 Hydrocarbon basin assessment: training in organic geochemistry, sedimentology, well records (Indonesia)	BGS	ODA
4.4 Postgraduate studies in collaboration with NERC institutes and HEIs	All	—
4.5 Exchange visits and short courses	All	—

Letter from the Chairman, Development Assistance Committee, Organisation for Economic Co-operation and Development

Thank you for your letter of 30 January 1989 seeking written testimony for the Select Committee on Science and Technology.

In general, the material I am providing to you will likely be more helpful in asking the right questions than in providing answers. The DAC is not in a position to make meaningful judgements about the quality of effort of its members in specific subject matter areas.

Regarding the first four points on which evidence is invited, I can only say that in the DAC ODA has a good reputation for its seriousness of purpose and its application of good programming principles. Indeed, DAC recently reached a consensus on Principles for Project Appraisal and was very much helped in the drafting by material provided by ODA.

On the fifth point having to do with the respective merits of bilateral and multilateral funding of scientific and technical aid, I do not think there is any simple answer. One important distinction between the two forms is that bilateral aid comes with the expertise of the aid agency and of the national institutions to which it has access. Multilateral aid is less likely to be as well tied in with national institutions. On the other hand, bilateral aid is often not sufficiently well co-ordinated with support being provided by other donors. Multilateral institutions seem to find it easier to pull the strands of activity together. Yet, there is no reason why a bilateral donor, if it makes the effort, cannot do as well in co-ordination.

You have asked for comparative information on the activities of other countries. The DAC has not had a meeting on science and technology in recent years. We are going to discuss whether or not to have such a meeting at a planning meeting in April. However, I am able to provide you with a 1985 document entitled "Scientific and Technological Co-ordination with Developing Countries". This does provide some comparative information which you may find useful [*not printed*].

It is not clear to me what definitions you may be using on "scientific and technical aid". In the DAC we have collected statistics on technical co-operation expenditures. We have found that Members have not followed completely uniform definitions for this category, but we conclude that about a quarter of our assistance could be defined as technical assistance or technical co-operation. That means something in the neighbourhood of \$8 billion a year. The significance of that figure is, of course, that the amounts are so large we should be giving increasing attention to the efficiency of use.

Joseph C Wheeler
Chairman, Development Assistance Committee
23 February 1989

Letter from the Organisation of Eastern Caribbean States

I wish to acknowledge receipt of your letter of 26 January, 1989 requesting the views of the Secretariat on the subject of the British government's programme of science and technology aid to developing countries. Your letter had requested a reply by the first week of April, 1989 and while this date has passed it is hoped that the information contained herein, will prove to be of some assistance and usefulness in guiding the Select Committee of the House of Lords.

In the Secretariat's view the establishment of the Sub-Committee is timely. The reality is that Regional States and Members of the OECS in particular, are becoming increasingly sensitised to the critical role that Science and Technology must play if their economies, with careful re-structuring, are to produce the levels of goods and services necessary for sustained, sub-regional development and for a significant reduction in unemployment, under-employment and poverty.

As reflected in the attachment which summarises the Secretariat's views under the "specific points" listed in your letter, Science and Technology must be instrumental in delivering tangible benefits to the region's populations in the traditional and equally if not more so the non-traditional sectors.

With respect to the services sector by way of example there is clearly an urgent need as has been stated in other quarters to expand services to include not only tourism but also *skill-intensive* and *knowledge-intensive* services which should embrace engineering design, petroleum and bauxite technology, agronomy and financial and information services among others.

It has been pointed out already by some experts that, given the accessibility of modern technologies, there is opportunity for this region to upgrade production technology by what is termed "technology leap-frogging". This would need to be placed within the framework of a technology policy which forms part of an overall development plan with concrete incentives, fiscal and otherwise, to enterprises for Research and Development with the appropriate institutional infra-structure.

Lastly and relatedly, in the Caribbean there is a serious need for the development of human resources to facilitate adaptation of imported technology.

In closing, the Secretariat hopes that the views expressed in the attachment are as said earlier found to be of positive assistance to the Sub-Committee in its deliberations.

Jimmy Emmanuel
For Director-General
5 May 1989

ANNEX

INTRODUCTION

In broad terms it is felt that aid should seek to enhance the capacity of recipient countries for improving the welfare of citizens by optimizing the use of all available resources. In the case of scientific and technological aid, the development and management of scientific and technological (S&T) resources is an area of major concern.

There are at least four important issues to be considered:

- (a) Development and retention of human resources;
- (b) Development and use of information resources;
- (c) Development and use of an (S&T) infrastructure;
- (d) Acquisition of technology from internal sources and abroad.

These issues are pervasive and impact across a broad range of macroeconomic, sectoral and industrial development objectives. These are for example employment generation; agricultural diversification; environmental protection; improvement of quality standards and the productivity of traditional export industries; the expansion of tourism; the development of inter-sectoral linkages (eg between tourism, agriculture and handicrafts); and development of new service industries (in areas such as financial and data entry services).

SPECIFIC POINTS OF INTEREST

1. *Objectives and Effectiveness of the UK's (S&T) Aid*

In the field of (S&T), there has been a tendency in the UK's technical aid projects to develop, adapt or field-test technology in developing countries with a view to identifying opportunities for UK manufacturers to produce and market technology needed by developing countries. Furthermore the UK does not seem to have an effective and flexible mechanism for dispensing Research and Development (R&D) assistance to developing countries. For example there is no institution comparable to the IDRC in Canada as far as is known.

Much of the work of the TPI/IDRI seems for example to fit into this category.

In the Secretariat's view emphasis should be placed on developing the capacity of local institutions to meet technology needs, wherever feasible, and for the future, on building into projects, mechanisms which facilitate development of a local capacity to sustain the important functions performed by technical aid.

The brain drain and the high costs of training on a small scale are major problems, confronting human resource development in small Caribbean States. For technical aid to be effective and lasting, a major objective must be a reduction if not elimination of these problems. Ways and means should be explored, to reverse the brain drain by enabling developing countries, to tap the expertise of nationals with (S&T) skills who have migrated overseas.

2. *How Priorities are Identified and Projects Executed and Evaluated*

Research and Development (R&D) is costly and there are also other constraints to the effective utilization of the results of (R&D). Technological deficiencies, inadequate information flows, infrastructural problems and poor research institutions are some of the key problems.

The absence of a strong tradition of (R&D) in itself further creates psychological barriers to growth. (R&D) activities must be prioritized and implemented from a cost-efficiency standpoint. The identification of priorities should be based on economic and market conditions as well as on institutional capabilities. In the OECS economies, (R&D) should be concentrated on activities in the following sectors:

- (a) agriculture and agro-processing;
- (b) ancillary industries to tourism, (transport, sports and leisure);
- (c) small manufacturing;
- (d) information systems for policy making;
- (e) communications;
- (f) technical and business education.

In the Secretariat's view, the successful execution or implementation of (R&D) projects requires a commitment to long-term funding of these projects; the utilisation of an effective net-working system involving both local and foreign research institutions; and the greater involvement of the indigenous work-force and entrepreneurs in the implementation process. Evaluation of the process at regular intervals should be done to provide useful feed-back thereby helping to ensure that (R&D) activities are beneficial.

3. *Discernible Trends in UK Policy. How Desirable?*

Many donors, including the UK, have become increasingly wary of funding operations which may be construed as budget support. This development has meant that for many projects, supportive counterpart activities vital to overall success, have been under-funded due to paucity of local resources. Such a policy militates against the fullest possible assimilation of "knowhow" resulting from scientific and technical aid.

The growing emphasis on the provision of "quick-fix" solutions to technical problems, the trimming of aid programmes rather than the provision of assistance in stimulating the growth of local expertise, have all led also to little attention being paid to the training of counterparts and to institution building so vital for recipient countries. Though more costly initially such a strategy would, if adopted, be more cost-effective in the long-run.

4. *Adaptation of Aid to Needs of Recipient Countries*

A high priority needs to be put on aid projects being adequately adapted to the project environment in areas such as the level of scientific/technological content in relation to the absorptive capacity of local institutions; the recognition of the importance of inter-sectoral linkages; the need to ensure that the whole range of constraints on the application of (S&T) are addressed including marketing/dissemination to end-users; the need to address issues related to environmental impact more directly; and the recognition of the fact that technology is not neutral and the scale of operation may have important social implications.

There is need also to address a number of other areas to maximise the benefits of aid to recipient countries.

For example, some aid projects are oriented towards direct developmental objectives with little attention being given to (R&D) activities. Then again even when aid has an (R&D) orientation, (R&D) activities are generally concentrated in donor agency institutions rather than in indigenous institutions.

Too little attention also is paid to developing the infrastructure in recipient countries needed to effectively utilise (R&D) findings by the transfer of technology, and the encouragement of commercial operations. Technology again may be provided which is not appropriate to local conditions (the environment, labour skills, education levels, etc.). Lastly (R&D) projects often require a long-term concerted effort to be effective which runs counter to the more short-term goals of many donor agencies.

5. *The Bilateral Versus Multilateral Approach to Technical Aid*

In the small countries of the Caribbean, a combination of multilateral and bilateral approaches is essential on the following lines.

Firstly, there should be networking to share expertise and infrastructure on a regional scale.

This is an important mechanism for sustaining a broad range of (S&T) capabilities that no single country can afford. Secondly, there should be multilateral approaches to facilitate delivery of (S&T) services complemented by assistance at the national level to ensure that there is a capacity to effectively utilise the services that are to be provided. Thirdly, competent regional and national institutions should be used as far as possible to deliver technical aid in the most cost-effective manner possible.

5 May 1989

Additional Supplementary Memorandum by the Overseas Development Administration

Q.1 Can the Deputy Chief Natural Resources Adviser (Research) give a brief description of the European Commission research Committees on which he sits (P 4), including their priorities and procedures, the main topics on which they fund research, which United Kingdom institutions (if any) receive funds and what proportion of funds are spent in developing countries?

The DCNRA (Research) is Deputy Chairman of the Management and Co-ordination Advisory Committee for Development-linked research (CGC8). Within CGC8 he chairs the Committee of the Whole on Agriculture, which consists of six sub-groups:

Group 1—Improvement of plant production and genetic resources and crop protection.

Group 2—Stock farming, fishing and aquaculture.

Group 3—Forests.

Group 4—Conservation and better use of environment, water, soils and fragile environments.

Group 5—Agricultural engineering and post harvest technology.

Group 6—Farming systems.

Of these sub-groups he chairs Group 1. Each sub-group has six experts drawn from Member States to provide a range of scientific knowledge.

Priorities

These committees assist the Commission to carry out the Community's Science and Technology for Development Programme by providing professional advice. Their task is to make recommendations to the Commission on proposals submitted to be carried out under the programme. Priority areas are those outlined above.

Procedures

Proposals may be submitted by institutions in the Community and in developing countries. Selection procedure is as follows:

Project proposals are carefully assessed by experts from Community countries and developing countries, and following consideration by the sub-groups a list is submitted to the Commission for final decision.

Topics

The main subjects in which research is funded are those covered by the groups listed above. Within each group the range of work funded is considerable; examples include (Group 1) genetics of pineapple, resistance of maize to a parasite weed and (Group 5) mycotoxin production in oil seed rape and production of energy from agricultural sources by gasification.

UK Institutions

Some 25 UK based institutions receive funds under the current programme. For example, eight UK universities and two units of the Commonwealth Agricultural Bureau, two units of the Agricultural and Food Research Council, the Rowett Institute and the Royal Botanic Gardens at Kew.

Funds spent in developing countries

It is not possible to provide a precise figure for the proportion of funds spent in developing countries, as this varies from programme to programme and tranche to tranche. Overall, however, it is likely that between 30 per cent and 40 per cent of funds are spent in developing countries.

Q.2 Apart from the support given to ITDG, what action has been taken to implement the recommendations of the ODM Working Party on Appropriate Technology, which reported in May 1977? What additional expenditure has resulted from these recommendations?

Policy guidance on Appropriate Technology was issued to ODA staff to draw attention to the recommendations and to describe the institutional arrangements for their implementation. A note is annexed recording actions taken to implement individual recommendations.

Statistics are not available for additional expenditure resulting from the recommendations. However, the increase in our grant to ITDG indicates ODA's continuing and positive response to the need for help in this field. For the period 1987–88 to 1989–90 the grant shows a real increase of 50 per cent over the previous triennium and amounts to £2.1 million this year. Additional support for ITDG is provided under country programmes and from R&D funds—usually less than £100,000 a year.

ANNEX

FOLLOW UP TO RECOMMENDATIONS OF WORKING PARTY ON APPROPRIATE TECHNOLOGY

The response to the detailed recommendations of the Working Party has been as follows.

ii.(a) *Research and in particular development funds should be administered with a clearer recognition that risks will inevitably have to be taken.*

R&D is recognised as an area of uncertainty where work may prove to contribute significantly to the transfer of appropriate technology or it may show that a particular line of research is not viable. In deciding which R&D projects should be supported, our choice is directed to those that can reasonably be expected to bring economic and social benefits.

ii.(b) *Technical assistance should be provided to selected establishments in developing countries specialising in intermediate technologies.*

ITDG is our principal channel for support to these institutions. In addition support is available under ODA's country programmes, for example to the Technology Consultancy Centre, Kumasi, Ghana.

ii.(c) *Technical co-operation officers should be briefed to look for intermediate technology opportunities.*

Technical co-operation officers and volunteers in whose fields intermediate technologies are considered by the relevant adviser to be likely to have an impact, are offered a free subscription to the ITDG journal "Appropriate Technology" and briefing of these officers encourages them to look out for ideas for the development of such technologies.

ii.(d) *Overseas posts and Development Divisions should be encouraged to look out for and respond favourably to requests for assistance in intermediate technologies.*

Policy guidance was given in April 1978 to overseas posts and Development Divisions emphasising that special regard should be given to the possibilities of using intermediate technologies.

ii.(e) *Increased emphasis be put on intermediate technology projects within the 50:50 scheme with voluntary agencies.*

The ODA's Joint Funding Scheme (JFS) reflects a growing awareness of the need for intermediate technology projects. In 1989–90 29 JFS projects included an appropriate technology component at a total cost of £1.103 million in 1989–90.

iii. *As far as capital aid is concerned, we recommend that ODM geographical departments should give special attention to intermediate technologies. Consideration should also be given to providing lines of credit, perhaps associated with technical expertise, to developing country financial institutions specialising in lending to small scale industries.*

Policy guidance was issued in April 1978 to geographical desk officers. This draws attention *inter alia* to lines of credit as a promising avenue (perhaps associated with technical expertise) for ldc financial institutions such as credit banks which specialise in lending for small scale industries. As these institutions are likely to be first port of call for local entrepreneurs seeking to set up production facilities.

iv. *We recommend in addition a new initiative to encourage people in Britain and the developing countries to come forward with good ideas; to provide ways of translating them into marketable products; and to put people in Britain and the developing countries interested in intermediate technologies in touch with each other. Activities should as far as possible be in the developing countries, and should concentrate on production and marketing.*

v. *To achieve this we recommend that ODM should:*

- (a) *encourage the strengthening of information gathering and dissemination;*
- (b) *encourage the establishment of links between British producers and overseas markets;*
- (c) *encourage the testing, monitoring and evaluation of prototypes;*

- (d) *consider providing development finance to firms in Britain and developing countries for producing intermediate technology products;*
- (e) *encourage marketing surveys and campaigns as one means of achieving the above;*
- (f) *should be prepared to provide financial support to new and existing institutions in Britain or the developing countries, include voluntary agencies, other than through the 50:50 scheme, concerned with the effective promotion of intermediate technologies.*

vi. *We recommend that not less than £500,000 a year for three years beginning 1977-78 be set aside from the aid programme for these purposes, to be increased if demand and results justify it.*

£540,000 a year was originally set aside for the new activities listed in the recommendations. With the successful growth of ITDG, ODA's specific allocation of funds for appropriate technology is now directed entirely to ITDG. The ODA grant is in support of ITDG's overseas activities plus related UK overheads. In addition geographical departments, Development Divisions and sectoral divisions support appropriate technology from country and regional programmes and sectoral R&D.

A recent initiative has been ODA's appointment of a small scale enterprise adviser working on a part-time basis to assist geographical departments in identifying and preparing activities which promote small scale enterprise development. The adviser pays particular regard to the question of appropriate technology.

vii. *We recommend that a clearly defined departmental responsibility should be created in ODM to cover all aspects of intermediate technologies (outside the operation of the bilateral aid programmes) and to manage the new funds, supplemented if necessary by an advisory panel of ODM and outside advisers.*

Responsibility is held in the Aid and Social Policy Group (ASPG) of the Economic and Social Division. An ITDG Steering Committee is chaired by the head of ASPG. Its members include outside experts, ODA's chief engineering adviser, a deputy director of the Overseas Development Natural Resources Institute (ODNRI) and ITDG representatives. The Steering Committee reviews progress and considers ITDG's plans for future work and other policy issues.

In addition ASPG regularly visits ITDG, Rugby to maintain close communications and discuss progress in implementing the programme.

viii. *We recommend that a proportion of the funds be allocated direct to the Intermediate Technology Development Group to enable them to carry out certain activities in v. above, and to recruit the staff needed to do so efficiently.*

An annual grant to ITDG followed the Working Party's report and it now stands at £2.1 million. This has helped ITDG to pursue action under the recommendation and build-up its staff accordingly.

ix. *We recommend that the ODM Special Units should have access to the funds to extend existing activities in the areas mentioned in v. above in their respective fields.*

The Special Units have been amalgamated and now form the ODNRI. ODNRI currently operates as a contractor of services on which ODA headquarters has first call. Headquarters departments commission work and pay for it from Aid Programme funds.

ODNRI's work in the field of appropriate technology is described on page four of the Central Office of Information leaflet "Intermediate Technology and Britain's Overseas Aid".

x. *We recommend that the activities of the ITDG and the ODM Special Units should be complementary not competitive.*

There is close co-operation between ITDG and ODNRI. Contacts were reinforced by a meeting at Rugby in January 1988 which was attended by the Director of ODNRI and one of his Deputy Directors. This fostered specific contacts and clarified that the overall aim should be fruitful collaboration with mutual benefit to both institutions.

xi. *We recommend that the Commonwealth Development Corporation should be asked to consider extending its intermediate technology activities, in particular by:*

- (a) *offering advice based on its own experience, particularly in handling produce and in organisation systems;*
- (b) *providing field trial facilities on its projects for prototype intermediate technology products developed by others.*

An outline of the CDC contributions to technological development was given in its evidence to the Select Committee on 26 April. By maintaining regular contact with ITDG and being an associate member of ITDG, CDC keeps possibilities for using intermediate technology very much in mind.

xii. *If our report is accepted we recommend that Ministers take what opportunities are open to them to make known ODA's interest in and commitment to the concept of intermediate technologies.*

Opportunities are taken for example in Ministerial replies to MPs' letters, by the distribution of the leaflet "Intermediate Technology and Britain's Overseas Aid" and in Mr Patten's speech at ITDG in May 1988.

A short description of ITDG's work and our support for it is also given in the Annual Reviews of British Overseas Aid.

Q.3 Which of the 13 CGIAR Centres does ODA not support (only nine are listed on P 7)? How is the size of contribution to each Centre determined? How has the United Kingdom contribution to each Centre changed in real terms in recent years?

All 13 CGIAR Centres are now supported by ODA. A recent decision was made to provide a modest level of funding to the West African Rice Development Association (WARDA) which provides a strictly regional rice development focus. The other three Centres not listed in the original evidence were excluded as they do not conduct *direct* research on renewable natural resources, although their work provides crucial support for the main international agricultural research centres. They are the International Board for Plant Genetic Resources (IBPGR), which seeks to foster appropriate policies for the protection and conservation of the developing countries' germplasm resources; the International Food Policy Research Institute (IFPRI), which covers the broader policy issues on which research policy depends; and the International Service for National Agricultural Research (ISNAR) which provides an advisory service to national research systems on their development, structure, linkages and other key aspects.

The ODA's contributions to the CGIAR Centres are fixed annually following assessment by ODA Natural Resources Advisers and administrators of the Centres' performance and competence against (i) CGIAR-agreed targets and (ii) ODA's commodity and geographical priorities. ODA's close scrutiny of these factors is reflected in the figures. In future ODA contributions will be influenced in large measure by the new Renewable Natural Resources (RNR) Research Strategy. The following table gives for comparison ODA's contributions in current costs in FYs 1984-85 and 1989-90 (in £000's):

	FY 1984-85	FY 1989-90
CIAT	330	530
CIMMYT	400	740
CIP	340	510
IBPGR	220	500
ICARDA	370	550
ICRISAT	680	960
IFPRI	50	200 (contributions started in 1984)
IITA	400	450
ILCA	220	310
ILRAD	330	670
ISNAR	120	140
IRRI	680	875
WARDA	NIL	65 (contributions started in 1989)

The *real* increase in overall contributions to all CGIAR Centres was 22 per cent during the five year period covered.

Q4 How has ODA research expenditure been evaluated in recent years? What proportion of ODA's expenditure is so evaluated? What changes in funding patterns and procedures have resulted from evaluation? Please give examples of ODA funded research that has been transferred to rural communities in the last few years.

Evaluation work on research financed by ODA is divided between operating Departments and Evaluation Department. Work carried out by operating Departments generally takes the form of reviews of on-going work prior to a new commitment.

Evaluation Department in its formal evaluation, aims to assess the scientific validity of research and its impact in scientific and socio-economic terms.

The following evaluation studies of research projects have been produced by Evaluation Department in recent years:

- EV 241: Kenya Maize Agronomy Research Project, 1983
- EV 273: India: Dryland Farming Research, 1983
- EV 348: Three Dryland Farming Research Projects in Botswana, 1983
- EV 284: Evaluation of ODA-funded Development of Hydraulics Research Limited Numerical Model for Long-term prediction of Salinity Intrusion in Estuaries, 1984

- EV 325: Kenya, India, Sri Lanka Appropriate Technology, 1984
- EV 401: Appropriate Technology Projects and Programmes, 1987
- EV 432: Cocoa Research in Ecuador, 1987
- EV 422: ODA-sponsored Product Development, 1989

Two examples of evaluation work by operating departments are given below:

Renewable Natural Resources

The main consequence of past reviews has been the recent exercise involving the preparation of the RNR Research Strategy, which drew on the results of all recent reviews and sets both broad and detailed priorities for ODA-funded research over the next 10 years. Details of the revised Review schedule can be found on PP 38–40 of the RNR Strategy document. Another consequence has been the preparation of a revised Project Application Memorandum Form which sets out, more clearly than in the past, the criteria on which research applications are evaluated.

Economic and Social

The ODA carries out a three-yearly review of the operation of the Economic and Social Committee of Overseas Research (ESCOR). The last review was completed in September 1987 and resulted in a streamlining of procedures, together with the recommendation that future ODA supported research should be more clearly focused on priority areas. The review also recommended that the ODA should take a more active role in the dissemination of research results. Guidance was issued to researchers in early 1988 on the ODA's priorities for economic and social research. These include work on structural adjustment, the environment, gender issues, AIDS, poverty alleviation and institutional development. New projects were funded in all these areas during the last year, except in institutional development, where we have had difficulty encouraging good applications. The ODA is at an advanced stage in commissioning a new research bulletin for economic and social sector work, which will disseminate research results amongst academics and policy makers both in Britain and in developing countries.

It is not possible to express those activities formally evaluated as a proportion of total R&D expenditure since they represent expenditure spread over a number of years. For illustrative purposes, total expenditure on R&D in FY 1986–87 was about £41.7 million.

Examples of ODA funded research results transferred to rural communities are attached.

ANNEX

EXAMPLES OF ODA-FUNDED RESEARCH TRANSFERRED TO RURAL COMMUNITIES

- Work on heatshock proteins of pearl millet now being used for production of new cultivars for the hot areas of Rajasthan;
- Development of new varieties of cowpeas resistant to parasitic weeds;
- Extensive use in local breeding programmes, in many cases through International Agricultural Research Centres, of the results of work on the light and thermal parameters in legumes;
- The marketing of fresh cassava in polythene containers;
- Development of alternative uses for sorghum in collaboration with the East African Industrial Development Organisation;
- Introduction on Egyptian cotton of pheromones developed in the United Kingdom as an alternative pest management system to environmentally potentially-harmful products including certain pesticides;
- Introduction in Thailand of liming treatment of acid-sulphate soils following intensive soil survey and agronomic trials, resulting in increased rice yields;
- Development of artisanal fisheries in Honduras, Vanuatu, Sri Lanka and St Helena following design and testing of simple catamaran fishing vessels and economic research into surf-landing catamarans;
- Enhancement of South-East Asian regional fisheries diagnostic and extension services through results of research on *Tilapia* diseases, viral aetiology, fish tissue culture and other subjects.
- Introduction in Africa of odour-baited targets and traps developed in the United Kingdom for control of tsetse flies as an alternative to environmentally potentially harmful methods of control;
- Introduction to the Malawi Central Lakeshore Development of safer insecticides for use in fish preservation.
- Introduction into the Caribbean of virus-free *Dioscorea* yams, free of internal brown-spot symptoms and giving 30 per cent higher yields.
- Introduction of improved tillage systems for small farmers on vertisols and compacting soils in Sudan.
- Introduction into semi-arid West Africa of an improved animal-drawn rolling tiller and single tyne tiller for small farmers.

- Introduction of a bubble seed irrigation system for fruit trees in the Yemen Arab Republic.
- Improvements in nutrition of draught animals, especially in respect of the palatability and nutritional value of rice straw, the traditional feed for draught animals.
- Introduction in malaria endemic areas of Malawi of insecticide impregnated bed-nets.
- The floating of polystyrene beads on waste water ponds to reduce numbers of malaria carrying mosquitoes in Zanzibar.
- Improved family planning information in several countries including Columbia, Pakistan, Nepal and Zimbabwe.
- Improved handpump designs, via World Bank co-operative projects in East Africa, and by incorporation in British-manufactured designs (Mono pumps).
- Windpumps in Kenya, Pakistan, Zimbabwe and Nigeria.
- Improved cooking stoves in Sri Lanka, Nepal, Kenya and Indonesia.
- Horizontal drilling rigs for improvement of hand-dug wells, in Malaysia, Sri Lanka and Zimbabwe.
- Biogas plants in Mauritius.

Q.5 You say that "the results of research are made freely available and the widest possible publication is encouraged" (P 23). Does this policy apply equally to basic, strategic and adaptive research? How often and in what circumstances are the results of research restricted to particular suppliers through licences and patents? How and when does ODA "encourage the private sector to invest in products and technologies for developing countries markets ... by collaborating in research" (P 6)? Please give some recent examples.

The policy of encouraging the widest possible publication of the results of research applies equally to basic, strategic and adaptive research.

Patenting and licensing arrangements are seldom used although their application and relevance is under close study; current ODA policy is that protective patenting should only be sought where there is a risk that a newly-developed technology might not otherwise be made available effectively to developing countries. For instance, in some areas of adaptive research, restriction is allowed in order to assist emergence of commercially viable manufacture and to ensure quality of product.

Subject to the latter consideration, ODA seeks wherever feasible to encourage collaboration between the research organisations it funds and private organisations, under part-funding arrangements, on research into new techniques. Similarly, ODA encourages the same organisations to involve, wherever possible, developing-country-based firms in the exploitation of new processes for local markets once these processes have been sufficiently developed. The guiding principle followed is the provision of assistance to developing countries in the most cost-efficient manner compatible with considerations of impartiality. Both technical and marketing aspects may be covered. Examples include the following:

- collaboration with ICI on the development of a microencapsulated formulation for the slow release of a pheromone to control insect pests, culminating in the patenting of a product registered for use on cotton in Egypt, Peru and Pakistan;
- collaboration with ICI on the development of a specialised dust treatment for the control of the larger grain borer and other storage pests in Africa at the farm level, on the protection of dried fish from blowfly attack and on the development of rodenticide baits not subject to attack by storage pests;
- collaboration with Caribbean banana producers, exporters, the Geest company and the manufacturers of fungicide-impregnated pads which has greatly reduced the incidence of crown rot and thereby benefited both producers and UK private industry;
- development of charcoal kilns giving both greater yields and lower atmospheric pollution, initially manufactured in the UK but now manufactured in developing countries from ODNRI plans, this process having been taken a stage further in Sri Lanka where the improved kilns produce, as well as high-quality charcoal, the heat to dry the shredded coconut (this last-mentioned process involving close collaboration with the UK food industry and yielding £200,000 of sales for UK manufacturing industry);
- development, and licensing to the Sturtevant Group, of equipment for the processing of cashew nuts, leading to sales of 41 units at a unit price of around £300,000; and also development of equipment for the processing of macadamia nuts, now in use in Malawi.
- the low-head drip irrigation system which is being evolved in association with Wimpey Laboratories.
- the GIS system which has been developed by Scott, Wilson & Kirkpatrick in association with Wimpey.
- the water quality test kit developed by the Robens Institute.
- the Portapac slow sand filter.
- design modifications to the McKellar Engineering small hydro-electric turbine.
- testing of the Talbot self-closing tap.

Q.6 The Sub-Committee have now seen the Research Strategy for Renewable Natural Resources and a strategy is currently being developed for health, population and nutrition (P 10). Are there plans to develop research strategies for other sectors? If so, when?

A strategy for research in a range of Engineering topics is being updated; we aim to finalise it by the end of 1989. It will be based upon the approach which was last revised in 1984.

Research priorities for economic and social research were worked out following the 1987 review (see answer to question 4). These priorities are currently under review in discussion with the British academic community and in response to ODA's major policy concerns.

Q.7 How extensive is the process of consultation with developing countries over their needs in the formulation of a research strategy? Is documentary evidence sought?

ODA's research strategy is based upon the collective experience of numbers of advisers and specialists. It evolves from an iterative process of discussion and consultation with people from the developing countries drawing on their views of needs and difficulties. For example:

- to maintain a strong demand-led focus to the research programme, the relevant staff of ODA and ODNRI seek to maintain and develop regular local contacts and two-way information flows, both through direct meetings with foreign scientists and officials or through attendance at international conferences and symposia, both in the United Kingdom and abroad, during which research needs are regularly discussed;
- the ODA is giving increasing emphasis to collaborative research involving social scientists in Britain alongside their colleagues in developing countries. This provides an avenue for developing country concerns to be incorporated directly into the programme;
- applicants for research funding have to provide written evidence that the work they propose to do has the approval of the Governments of the country or countries in which the work will be undertaken.

Q.8 Is any attempt made to achieve a balance between the scale of research on a particular activity with the scale of funding of that activity by capital aid? Energy has been a major element in capital aid from ODA and in ATP expenditure, there is apparently no ODA funded research on the provision, operation and use of conventional energy. Is this satisfactory?

We do not aim to match the scale or pattern of our funding of research in a subject-area and the funding of that area under capital aid. However:

- a major objective of the RNR Research Strategy is the achievement of a closer relationship between the research programme we finance and the concerns of countries and regions where we focus our capital aid.
- in recent years, programme aid has played a significant role in our bilateral country programmes in support of the structural adjustment efforts of many developing countries. This is reflected in the economic and social research programmes by the increasing emphasis given to research into policies of macroeconomic and structural reform.
- ODA are also funding an evaluation of past health and population research activities with the aim of developing a research strategy for health and population. One of the aims of this strategy will be to bring our HPD funded research more into line with priorities for bilateral assistance in the health and population sector.

In the case of conventional energy, the bulk of technology appropriate to the developing world is directly transferred from developed country experience. Equipment and processes required for the conversion, delivery and utilisation of conventional energy are developed and manufactured, internationally, by major industrial firms in response to their perceptions of market needs and of commercial competition. Such firms have access to substantial internal R&D funds, to funds from other Government Departments, and from EEC R&D programmes. The scale of R&D funds available to ODA is relatively small by comparison and they are therefore better used to support work in areas where (a) they are more nearly commensurate with requirements and (b) where other sources of funding are very restricted.

Q.9 What have been the changes in recent years of funding (in constant prices) of the main activities described in your evidence? What are the main areas of growth and the main areas of reduction? What are the main reasons for these changes (changing policy, changing needs, changing requests from recipients)?

The following table lists (in 1984–85 constant prices) expenditure in financial years 1984–85 to 1988–89 for the main sectoral research and development programmes:

	1984-85	1985-86	1986-87	1987-88	1988-89
Renewable natural resources	12.0	12.2	14.8	17.8	16.9
Health and population ⁽¹⁾	3.7	4.2	4.6	5.1	5.7
Engineering	4.4	4.7	5.1	5.1	5.0
Economic and social	1.2	0.8	0.7	1.0	1.0

Note:

(1) Figures include the estimated proportion of ODA's contributions to WHO Health and Population voluntary funded research programmes.

Renewable Natural Resources

It will be seen that ODA expenditure on research and development in the sphere of renewable natural resources has shown a steady increase in real terms between 1984-85 and 1988-89. Under the RNR Research Strategy (see Strategy document PP 25-27), greater emphasis will be given to plant protection, forestry, agroforestry and the environment mainly at the expense of research on animal health and a range of post-harvest subjects; these changes arising mainly from an increased Africa policy focus and perceived changes in user needs, especially those of small farmers with limited resources.

Health and Population

Within the health and population research programmes, a major change has resulted from the emergence of AIDS as a worldwide public health problem. Support for research in this area has increased from nothing in 1986 to a current commitment of about £1.3 million. ODA managed research in other areas is mainly reactive, responding to requests, but where necessary we try to stimulate requests in particular areas (eg population research) in order to reflect the subject's importance.

Engineering

Engineering research programmes reflect a 1984 strategy for improving physical infrastructure of certain developing countries. Increased attention is being given to water and sanitation topics and irrigation research. There has been a small decrease in building materials research, and a slight increase in communication work.

Economic and Social

ODA expenditure on economic and social research finances studies in a range of areas including industrial development, international trade and finance, agriculture and social issues. Projects have continued in all of these areas over the past five years but, associated with the guidance on research priorities in 1988 (see answer to question 4) there has been increased emphasis in the last two years on macroeconomic policy and structural adjustment; poverty alleviation and gender issues; the environment and the social aspects of AIDS. Studies in these areas respond to major policy concerns within the aid programme as a whole.

Q.10 What guidelines do you give to NGOs submitting proposals for support under the Joint Funding Scheme?

- Applications must come from NGOs who are registered in the UK as a charity with the Charity Commissioners;
- Projects must be aimed at long term development rather than welfare or short term relief;
- The upper limit of ODA's financial support per project will usually be £500,000.

The guidelines also set out some key questions about project objectives and activities—the answers to which will be vital in deciding whether or not ODA should support the project.

We had some very useful and productive discussions about the guidelines with representatives from about forty British NGOs at a workshop which we recently held in Edinburgh. As a result of these discussions we are currently working on revising certain parts of the guidelines so as to fully meet the needs of both the NGOs and ODA.

Q.11 Is the proportion of ODA funds for STA that is spent in developing countries likely to change in future (more or less local training, more or less research overseas, more or less use of local personnel, etc.)?

We will be aiming to increase the extent to which local researchers and institutions can be associated with the science and technology research work we finance. This may lead to more of the activity involved taking place overseas. While in many fields there are capable local nationals, the institutional framework within which they work is often weak and needs strengthening. Links between specific British and overseas institutions will continue to be encouraged as part of these efforts. Training undertaken locally, linked particularly to the implementation of our capital aid programmes, will continue to be an important feature of our work and could well increase if work on strengthening local training institutions makes satisfactory progress.

Multilateral research organisations to which we contribute—which themselves have global or regional coverage—all run programmes aimed at strengthening national research capacities in their fields. Over the past five years there has been a concerted effort by these organisations to switch the location of activity from the developed to the developing world. A good example of this is the new “field links” programme which has been established by the Tropical Disease Research Programme. This aims to establish and support a network of field researchers in developing countries linked to a small number of key institutions in developed countries.

Q.12 How will other work in the natural resources sector and the health sector be affected by increased emphasis on, respectively, environmental issues and AIDS? Are additional funds available to support these new priorities? If not, which areas will be cut as a consequence?

The RNR research strategy document indicates the consequences of changing priorities. The overall level of funding is considered annually on a rolling three year basis. Within given funding there will be a reduced emphasis on those areas where either countries or multilateral institutions are covering the field or where we have judged it has a lower priority than in the past. Additional funds have been made available for AIDS research and the level of funding for other health sector research has not been affected.

Q.13 What skills are in short supply as a result of the “retirement bulge” (P 6)? Are sectors other than Renewable Natural Resources also affected?

In the natural resources sector the retirement bulge will lead to serious losses of staff trained in a range of scientific and engineering subjects (eg agriculturalists, biochemists, microbiologists, process engineers, soil scientists). Those with a long, direct experience of conditions in developing countries and well equipped to take an integrated approach to natural resources problems (eg the use of livestock in agricultural systems) will be particularly missed. They were also well qualified to play a valuable role in local training activities, in which field skills may also become scarcer.

A steep decline is also expected in the numbers of engineering professionals having extended first-hand experience of the needs and circumstances within developing countries. A further difficulty arises due to the tendency in Britain and other industrialised countries towards the use of technologies of ever-increasing complexity and subtlety compared to those viable in the less mature infrastructure of many developing countries. Since professionals’ training in developed countries is geared to careers at home, they have some difficulties in applying their knowledge in overseas conditions.

Tropical Disease Research is a highly specialised field. The pool of researchers in Britain with experience of working in the tropics is declining. Efforts are being made to encourage developing country nationals to fill these gaps but this is essentially a long-term solution.

Q.14 Are “key sheets” (setting out the training needs of developing countries) made available to suppliers of services in the United Kingdom (universities, consulting agencies) so they can adapt their provision accordingly? How frequently are key sheets revised? What input does the developing country make to the key sheet?

Key-sheets are not made available to suppliers of services in the United Kingdom. They are a working document, liable to agreed change at any time, and a new key-sheet is prepared each year. We do not think they provide a basis on which suppliers could plan future services. Key-sheets are drawn up in consultation with overseas Governments, through British Diplomatic Posts, Development Divisions and British Council Representatives, and agreed with them. They can be revised at any time to take account of any special need. A key-sheet normally includes more training proposals than can be accommodated within a country programme to allow for the withdrawal or unavailability of candidates, or difficulties which might be met in arranging a course of training at a particular time. In all cases overseas governments are consulted on the issues concerned; the degree of their involvement varies from country to country.

Q.15 Other bilateral donors (eg France, Japan, Sweden) continue to provide survey and mapping services as part of their aid programmes. Why has the United Kingdom reduced its activity in an area where it had significant comparative advantage? How can projects be properly planned and executed, particularly in the environmental and natural resources sectors, without adequate mapping and other detailed geographical information?

For survey and mapping services, as in other fields, we take the view that these should be provided when they are clearly needed in a particular country to help further the development projects and programmes of its government. Over the past few years demand for mapping and survey work has steadily fallen. A related factor is the possibility of interpreting satellite images to produce special maps rapidly and inexpensively and the same system is used to update traditional base maps; we have financed this kind of approach. This has reduced the need for systematic ground survey and revision of base information for all but the most detailed maps.

ODA accepts that in the absence of updated maps it is difficult to plan natural resources and environmental projects satisfactorily, and takes this consideration fully into account when appraising project proposals.

Q.16 What links are there between ODA and the UN Centre for Science and Technology for Development? Is the United Kingdom represented on the UN Inter-Governmental Committee for Science and Technology for Development? How has the Vienna Programme of Action influenced ODA's activities in the area of STA?

The United Kingdom is in contact with the UN Centre for Science and Technology for Development through its Mission in New York, through which it receives relevant documentation from the Centre. The UK answers periodic questions from the Centre on scientific matters, addressed usually to all Member Nations, and receives its regular information bulletins. We support this information function of the Centre, and also its work on capacity building within developing countries themselves. We also support its emphasis on co-ordination of scientific and technological activities within the UN system; indeed, we are strong supporters of effective co-ordination in all fields of endeavour of the UN.

We are members of the Inter-Governmental Committee for Science and Technology for Development, attending meetings either from New York or London dependent on the subject matter to be discussed; and we currently have a British member on the advisory scientific body reporting to the Committee—the Advisory Committee on Science and Technology for Development. At the meetings of the Inter-Governmental Committee we take an active part, both directly and through the European Community, in its work.

On general policy, we have always taken the view that science and technology for development should not be treated as a separate issue in itself, but that science and technology are integral parts of the development process which are applied to specific areas of activity, such as eg research, agriculture and industry. It is in this context that we welcome the current concentration of the UN Centre itself on endogenous capacity building and information exchange.

A reading of the Vienna Programme of Action, in our view, bears out this analysis. For example, the emphasis of the Programme for *developing* countries is on the development of managerial capacities, the training of scientific personnel and the exchange of information—all of them areas in which we are already active. *Developed* countries similarly are asked to support scientific and technological research and to work with developing countries in training their scientists and technologists; we do this. On finance, we are asked to improve the terms of aid, which we have done. As regards the international scene, the Programme of Action calls, correctly in our view, for improvement of co-ordination in the UN system itself, an area where we press continually for improvements. In general, therefore, the findings of the Vienna Programme of Action are in line with our current aid policy as applied to specific areas of economic activity in the developing world.

Q.17 Is the trend for increasing delegation of STA activities to other agencies (British Council, consulting firms) likely to continue? Does the ODA have sufficient management resources to oversee and direct such delegated work?

For helping to implement projects in most sectors in our bilateral country programmes, we would expect to continue to use field managers whether TCO's, as individuals or in teams, or other agencies such as private consultants, the British Council or other public institutions. We believe there is scope for expanding this approach; which allows ODA's staff to concentrate on monitoring this work and pulling back from field management. For research and development programmes we will aim to use ODNRI and other institutions and bodies to co-ordinate and control programmes of research and development rather than asking them to handle an array of individual research projects. Again this will allow ODA's in-house expertise to focus attention on strategic planning, setting objectives for programmes of research and monitoring the results.

Q.18 Is the United Kingdom adequately represented at a senior level on the staffs of multilateral aid agencies? What could ODA do to influence this?

The ODA has lead responsibility on this only in relation to certain of these agencies, in particular the four Regional Development Banks, the International Fund for Agricultural Development, the UN Development Programme, UNICEF, the UNFPA, the FAO and UN Industrial Development Organisation; the research institutions covered by the CGIAR; and the World Food Programme. The ODA has lead responsibility for the World Bank Group, subject to consultation with the Treasury, and in part for the UNHCR, on which the Diplomatic Wing of the FCO leads.

Our overriding concern is that the multilateral institutions should be staffed so as to secure the highest standards of efficiency and technical competence. The institutions are also concerned to select personnel on as wide a geographical basis as possible and we accept this, subject to the overriding concern for efficiency and competence.

The United Kingdom has high calibre people available and in the context described above we are anxious that suitable British candidates should be fully considered for personnel appointments by the institutions.

In the multilateral development banks the post of President is usually reserved to a particular member or group of members (in no case including the UK), but other posts are open to nationals of all members.

Executive Directors representing the UK are responsible for ensuring proper consideration of appropriate British candidates, to the extent that this is within their constitutional function in each bank.

In the World Bank Group, none of the four Senior Vice-President posts is currently held by a British national. One Vice-President (out of 15)—the Executive Vice-President, International Finance Corporation—is British, as are several Directors and Division Chiefs (the next two grades down). In general British staff are well represented in the World Bank, although we are alert to specific opportunities for which appropriate British candidates wish to be considered.

In the Regional Development Banks, British nationals are less well represented at senior level and we should like to see this position improved. This is partly because in all these banks we are relatively smaller shareholders, and in the African Development Bank in particular non-regional countries only recently joined the institution.

In the United Nations family of Agencies two separate staffing systems exist: where contributions are voluntary, recruitment is largely open; where contributions by Member Nations are assessed on a fixed scale, a quota system applies linking recruitment of professional level staff to the size of the Member Nation's contribution. Where open recruitment applies UK staff are quite well placed in senior positions, while on the quota system we are usually either up to or above quota.

In the two Directorate-Generals of the European Commission which deal with overseas aid, one Deputy Director-General and six Heads of Division are British. Britons also head nine delegations overseas.

Most senior positions are filled by internal promotion of people who have joined the institutions at lower levels and worked their way up, and lower level appointments of British nationals occur for the most part as a result of individual applications. We facilitate such applications.

In addition we have recently returned to membership of the UN Junior Professional Officer schemes and will shortly be financing on a continuing basis 12 young Britons as Junior Professional Officers or Associate Experts within UN Agencies: such experience is helpful in achieving appointment on the permanent establishment.

We are also sometimes prepared to finance British staff at middle levels to fill what we see as serious gaps in particular institutions. We normally do this for a maximum of three years, in the expectation that the post would then, if still required, become part of the normal establishment of the institution. Recent examples of this are:

African Development Bank

We are currently supporting five officers in the Bank—four economists (one agricultural, one educational and two transport) and one senior financial systems analyst.

European Commission

We are funding a forestry/environmental specialist in the Directorate-General for Development.

World Bank

We have supplied a hydrologist and mechanical engineer to work on rural water supplies in East Africa, and a physical planner to identify urban development projects.

October 1989

Memorandum by the Overseas Development Administration (Overseas Development Natural Resources Institute)

REPLIES TO QUESTIONS POSED BY THE SUB-COMMITTEE FOLLOWING THEIR VISIT TO CHATHAM ON 5 APRIL

Q.1 How do you expect the S&T needs of developing countries to change in the next 10 years?

1.1 The paragraphs which follow are confined to science and technology needs in the renewable natural resources sector in developing countries as they affect ODNRI.

1.2 The renewable natural resources sector is central to the economic prospects of most low-income developing countries. Agriculture accounts for between 35 per cent and 45 per cent of GDP in the low-income countries of Africa and Asia; no fewer than 11 African countries depend on agricultural exports for more than 80 per cent of their export earnings; and the majority of the world's poorest people depend on renewable natural resources for their livelihoods. It is conventional wisdom that the achievement of self-sustaining growth by most developing countries will depend on increased productivity deriving from technological change in this sector.

1.3 Over the next 10 years and beyond the science and technology needs of developing countries in the field of renewable natural resources will be shaped by the following factors:

- (a) An increasing, and changing, demand for food arising from population growth, income growth and urbanisation. (Some 30 per cent of the developing world's population lived in urban areas in 1980: the proportion is expected to double by 2025.) By the year 2000, no fewer than 64 countries—29 of them in Africa—will be unable to feed the projected population from their own land resources given current technology. Put another way, almost 40 per cent of the land area, with 60 per cent of the population of the developing countries, would be carrying more people than it could support.
- (b) Pressure on the resource base. This arises from two main sources: population levels which are high in relation to the capacity of the land; and the search for greater productivity as agriculture is increasingly oriented to the market.
- (c) Increased demand for energy. Over 80 per cent of wood produced in developing countries is used as fuel. The increase in demand for wood has already outstripped the growth in supply, thus accelerating deforestation, which is now running at an annual rate of 11 million hectares.
- (d) Poverty among the growing numbers of rural dwellers who do not have secure access to land, and whose livelihoods are dependent on casual jobs in agriculture, petty trading and rural industry.
- (e) Agricultural protection in developed countries. This has increased grain supplies and reduced the threat of world famine. But it is now harder for developing country exporters of grain and other commodities to trade in world markets, and more difficult to identify comparative advantage as between exports and import substitutes and between production of food and non-food commodities.
- (f) Biotechnology, which in the longer term is likely to transform commodity markets. Industrial countries are at the forefront of these technologies and temperate crops will be the first to benefit. In time, the market for some developing country exports will be threatened, in the same way as traditional tropical products, such as cane-sugar, fibres and rubber, have declined in the face of biochemical substitutes. An example is the export starch market for the tropical root crop cassava, which seems likely to be challenged by improved temperate cereals.

1.4 The implications for the work of ODNRI are as follows:

- (a) Greater emphasis on increasing crop and livestock productivity, both in areas of existing production—often the environmentally more favourable—and in the more marginal, often semi-arid, lands into which people are being forced to migrate. Such productivity improvements may involve irrigation, soil conservation, etc.
- (b) Increased need for careful land use planning. The humid tropical areas have the greatest scope for cultivation expansion but their ecological sensitivity is also very high. These are also the areas with the last remaining reserves of tropical forest. Land use planning must aim to direct new settlement to those lands that are best suited for agriculture, thereby ensuring the preservation of areas for both productive forests and conserving forest genotypes.
- (c) Attention to the reasons why human populations have tended to avoid potential settlement areas. This involves not only improved infrastructure but, more crucially for ODNRI, solutions for endemic problems, such as tsetse fly, soil drainage, and lack of domestic water supplies.
- (d) Promotion of tree production at the farm level ("social forestry"), both to supply wood, fuel and fodder needs and also as a means for conserving soils and improving soil fertility.
- (e) Increasing emphasis on environmentally sound and user-oriented pest management technologies which minimise agrochemical inputs. The involvement of small farmers at all stages in this process will be particularly important. Greater attention will be paid to the agents of crop loss: a better understanding of their interaction will lead to improved decision-making and reduced chemical intervention. This will be the main thrust of a major regional technical co-operation project in eastern Africa. Crop protection strategies will be devised which take account of ecological principles and seek to conserve and optimise natural regulatory mechanisms. The use of pheromones and insect pathogens for cotton pest control in Pakistan, Egypt and Sudan exemplify this approach.
- (f) A strong post-harvest programme which aims to increase the quantity and value of food derived from agricultural investment by means of better crop utilisation and quality and reduced losses. Returns to farmers in domestic markets and comparative advantage in export markets are critically dependent on quality. This programme will involve multi-disciplinary work on all aspects of the distribution chain: crop harvesting, handling, storage, processing, transport and marketing.
- (g) More work on biological energy sources and energy efficiency; for example, wood lots for rural communities, alternative biomass and renewable energy sources.
- (h) Further encouragement of small-scale agro-industrial and marketing enterprise and of technologies in related industries (eg packaging, equipment fabrication and repair) so as to exploit expanding markets, create non-agricultural employment and improve returns to farmers.
- (i) More attention to the application of biotechnology to tropical food crops. (The private sector in industrial countries, which plays the major role in biotechnology, pays little attention to such crops.) Developing countries will need help in applying biotechnologies, and international research collaboration in this field will undoubtedly expand.

Q.2 What trends do you foresee in the United Kingdom's capability to respond to the S&T needs of developing countries in the next 10 years? How are the changes in the structure and location of ODNRI affecting your ability to respond to the needs of developing countries?

2.1 The following observations relate to ODNRI. Trends in other British institutions are discussed in paragraphs 37–47 of Annex 1 to the ODA's memorandum "The United Kingdom's Scientific and Technical Aid to Developing Countries".

2.2 As the scientific arm of the ODA, ODNRI represents the largest single concentration in Britain of scientists, economists and administrators familiar with the operational problems of natural resources R&D in developing countries. It has substantial practical experience in its specialist fields over a wide geographical area, and staff maintain an extensive range of contacts in both national and international institutions. Its comparative advantage as a development agency rests on:

- (a) its inter-disciplinary approach to problem-solving. The Institute can mobilise a wide range of disciplines in the natural and social sciences;
- (b) a mutually-reinforcing link between technology generation and technology transfer. The professional staff, who travel extensively in the Third World, and possess hundreds of man-years of field experience, are in the closest possible touch with problems facing producers, consumers and institutions in developing countries. Their technology generation activities are therefore firmly rooted in the practical realities of conditions overseas;
- (c) a collective understanding of the development process, ranging across socio-economic and institutional as well as scientific issues; and of the policy, practice and procedure of the aid donor community;
- (d) support services encompassing a world-class library (250,000 volumes), in-house databases, the Tropical Soils Analysis Unit, and remote sensing and cartographic units;
- (e) substantial experience of contracting-in resources from other research institutes and universities.

2.3 ODA has sought to reinforce these strengths by amalgamating the Tropical Development and Research Institute and the Land Resources Development Centre as ODNRI in September 1987, and by relocating the unified Institute from eight sites to a single site at Chatham over some 18 months, starting in August 1988. The principal benefits and changes which are expected to follow from or accompany these developments are:

- (a) easier and more effective interaction between the Institute's professional staff. The benefits are already visible in the new approach to resource management involving strategy areas, programmes, problem areas and projects which was outlined to the Sub-Committee on 5 April. The affiliation to ODNRI of natural resources specialists from ODA's Corps of Specialists will further enhance professional interaction;
- (b) improved cost-effectiveness, deriving from lower input costs (accommodation and staff) and economies of scale in asset use;
- (c) self-sufficiency in management systems for finance, (large areas of) personnel, accommodation and information technology;
- (d) greater consistency in standards of R&D management, resulting from unified management systems and the ease of training on a single site;
- (e) improved ability to marshal British scientific resources directed at problems in the natural resources sector in developing countries. ODNRI's particular contribution here is its specialised knowledge of overseas conditions and of the international donor community.

2.4 At bottom, ODNRI's effectiveness turns on the calibre of its staff.

ODNRI depends on intellectually able staff who are effective in multidisciplinary teams working at the applied end of the R&D spectrum; who have the skills to transfer technologies as well as to develop them; who are prepared to spend considerable amounts of time overseas—often in disagreeable conditions; and who at higher levels in the organisation have to be accomplished managers as well as capable professionals. ODNRI has not so far faced major difficulties in maintaining its professional complement, in part because the appealing nature of its work in support of development has given it an edge in the skill market. Relocation and the broader mandate will help the Institute to compete for recruits. But this will be in the face of adverse demographic trends and a steadily increasing demand for graduate manpower; and the maintenance of an adequate flow of first-rate talent into Institute posts will be a major preoccupation for ODNRI managers over the coming decade.

Q.3 What balance do you achieve, and after what consideration, between undertaking activities in developing countries and in the United Kingdom?

3.1 ODNRI activities fall broadly into the categories of natural resource assessment, research and development (technology generation), and dissemination of these findings through publication of results and transfer of technology in the developing countries themselves.

3.2 Natural resource evaluations (eg of land or water resources), are almost invariably undertaken overseas and involve long-term assignments by the participants. Similarly, the implementation of forest

inventory, settlement planning, range development or irrigation feasibility studies are, of necessity, carried out in the developing country concerned.

3.3 A research and development ("technology generation") project generally starts with a phase of applied research in Britain. The next phase is the realisation of the "product" through experimental development, for example, the development of a technique or process, pilot-scale operations or pre-feasibility studies, or the design and construction of prototype equipment. This will typically be done in the developing country, but the balance between home and overseas work will depend on the individual project. The final phase of research is field trials and feasibility studies in the developing country.

3.4 Dissemination of ODNRI's accumulated knowledge is accomplished by advisory assignments overseas; training (both formal and on-the-job, in Britain and overseas); publication of research findings (in professional journals and in ODNRI's own scientific, technical and economic publications); presentation of papers at scientific and technical symposia and conferences; and correspondence in reply to enquiries. ODNRI's library and in-house databases also, of course, play a part in dissemination. By way of illustration, in 1988-89:

- 31 per cent of operational time was devoted to 450 short- and long-term assignments (typically "technology transfer") for ODA Geographical Divisions and external contractors;
- 170 participants from developing countries undertook specialised formal training courses in ODNRI's laboratories, and a further 180 were trained on courses overseas;
- 156 articles were published in professional journals;
- the Publications List was revised for distribution to the 14,000 recipients of ODNRI's thrice-yearly Newsletter (the revised list contains some 680 items);
- 2.4 per cent of operational time was devoted to replies to enquiries.

3.5 More generally, ODNRI staff were active in 1988 in 62 countries across the developing world, on assignments ranging in length from a few days to several years.

Q.4 How do staff of ODNRI contribute to the formulation of ODA policies?

4.1 ODA Headquarters divisions look to ODNRI staff for technical contributions to country review papers and to policy studies of trends and future needs in the renewable natural resources sector. A recent example of a major contribution by ODNRI to ODA policy is the role played by the Economic, Social and Statistics Department and Technical Departments in producing profile and commodity data for the Renewable Natural Resources Research Strategy.

4.2 Members of the Institute often participate in sector reviews overseas and in project identification, monitoring and evaluation missions. ODNRI also acts as a reservoir from which ODA Professional Advisers are drawn. Currently, former members are serving as Natural Resources, Research, Agricultural, Forestry, Engineering and Social Development Advisers.

Q.5 To what extent do nationals of developing countries participate in ODNRI projects? How are local costs met?

5.1 All Institute projects are devised and implemented in close collaboration with appropriate local institutions. These range from government departments to universities, research institutes and parastatal bodies.

5.2 Training of counterpart staff is usually a prominent feature of overseas assignments by ODNRI staff. For example, one of the most important aspects of the Regional African Armyworm Control project, based in Nairobi, is the training of local staff of the Desert Locust Control Organisation for East Africa in techniques for monitoring armyworm. Other armyworm research at ODNRI is strengthening the armyworm control service of the Crop Protection Branch of the Kenya Ministry of Agriculture through staff training and collaborative research projects.

5.3 Many projects, particularly those funded by the Natural Resources and Environment Department (NRED) of ODA, involve collaboration with national research institutes or universities. For example, as part of the development of a control strategy for migrant insects, ODNRI is using radar to investigate brown planthopper flight in collaboration with the Nanjing Agricultural University in China. Observations made in China by the ODNRI team will be combined with data collected by the Chinese using other sampling techniques to produce a model of brown planthopper population dynamics.

5.4 ODNRI also operates at farmer level, usually in association with local agricultural extension services. The Institute's economists and pest experts are currently engaged in a major study of farm practice in cotton-growing areas of Pakistan. In Mali a sorghum and millet pest control project, operated in collaboration with the national extension service, involves some 200 farmers in trials against millet stem borer and the millet headminer, both of which cause substantial crop loss.

5.5 Some ODNRI projects, particularly those concerned with the development of processing technology, involve nationals of developing countries through commercialisation of the process. An example is work in Sri Lanka on processing technology for coconut. Waste heat recovery from coconut shell decarbonisation

has been developed by ODNRI to the point where local companies, with the support of an ODNRI adviser, have taken up manufacture of the equipment. Several units are already in operation in the coconut industry and ODNRI is now commissioning a much larger unit which has been constructed locally.

5.6 The local cost regime for ODNRI projects is determined by the project funder. ODA Geographical Divisions decide policy on local costs for technical co-operation country by country, depending on economic circumstances. The implications for individual ODNRI projects are settled at the project planning stage. As a general rule, local costs for non-country-specific research financed by Natural Resources and Environment Department are met in full. It is however common for the recipient government or institution to contribute laboratory, field or office space, secretarial assistance, etc. Again, the local input would be agreed at the project planning stage.

Q.6 Do you see a trend towards privatisation of agricultural research throughout the world? If so, how will this affect the work of the ODNRI?

6.1 At present most agricultural research in the developing world is publicly-funded, by national governments and by donor agencies. This is especially so for basic food crops. Private funding of research tends to focus on estate crops, such as oilpalm, in which multi-national corporations have interests.

6.2 Compared to developed countries the market for the products of agricultural research in developing countries is characterised by:

- much more fragmentation (many more small farmers);
- high marketing costs in reaching farmers;
- very limited cash in the hands of farmers and little access to credit other than from private individuals at very high interest rates;
- greater uncertainty in achieving technical solutions appropriate to farmers' problems;

6.3 Because of such factors, the private sector tends not to target agricultural research investment on the developing country market. It tends rather to treat this market as secondary to the market in developed countries for items such as agrochemicals and farm machinery. Among other things this means that private sector research is more likely to produce technologies appropriate to the larger and better-off farmers in the developing world.

6.4 The features of the agricultural sector in developing countries which make it unattractive to private sector investors in R&D are not expected to change significantly in the foreseeable future.

Q.7 How do you expect your activities to change in response to increased Governmental concern about the environment?

7.1 ODNRI's professional staff are predominantly natural resources scientists and many are deployed on projects directly related to conservation of the environment. One of the major thrusts of the work of ODNRI is land use and resource assessment, in which the effective use of available land and water is balanced against environmental considerations. ODNRI has recently undertaken land use planning in the Tabora Region of Tanzania, and is involved in similar projects in, for example, Indonesia, Nevis, Nepal and Cameroon.

7.2 The rapid decline of the world's tropical forests is a source of major concern. ODNRI's forestry experts are contributing in several countries to the implementation of the FAO Tropical Forestry Action Plan. While mapping the Indonesian archipelago, areas are being designated by ODNRI for both production and protection forestry; in the next phase, local regional planners will be assisted to develop active forestry programmes while new settlement is to be confined to the areas best suited to farming. Elsewhere, as in Kenya and Nepal, the new emphasis is on "social" and community forestry, encouraging the planting of trees on the farm through, for example, the establishment of local nurseries and associated advisory services.

7.3 Another new departure for the Institute is providing support services and plans for land zonation in and around designated national parks and reserves, as in the current joint programme with the World-Wide Fund for Nature (WWF) in the Korup (Cameroon) and Oban Hills (Nigeria) National Parks.

7.4 ODNRI has initiated research projects in crop protection aimed at developing alternatives to the use of chemicals for pest and pathogen control, as well as monitoring the effects of pesticides on the environment. Development of insect pheromones for pest control has led to successful field tests in Egypt and Kenya. Research into the development of crop varieties with natural resistance to insect pests and pathogens is in progress in collaboration with plant breeders at research institutes in India, Mexico and the Philippines.

7.5 An important area of ODNRI's work is monitoring the impact of pest control programmes on the environment, in particular those that have relied heavily on the use of pesticides. In 1986 a study was completed of the effects on flora and fauna of 15 years of aerial spraying of endosulfan to control tsetse flies in Somalia and Botswana. A database has been developed which contains information on the biological impact of pesticides; it provides information on requests to scientists, farmers, and industrialists throughout the world.

7.6 Increased concern about environmental issues is expected to result in a greater call on ODNRI's resources, through expansion of research in the above areas; and through increased involvement of ODNRI experts in assessing the environmental effects of development projects at the planning stage, and in monitoring the effect of projects on the environment. This is likely to lead to changes in the staffing composition of the Institute, with increasing numbers of foresters, ecologists and conservation specialists.

7.7 ODNRI stands ready to develop its capacity to meet these new challenges and to assist developing countries to formulate and adopt policies and practices for the wise and sustainable management of their natural resources. It is strengthening its team of forestry and land-use experts; it is expanding its work on the development of environmentally sound methods for the control of pests, disease and weeds, and it is providing technical support for the work of the Intergovernmental Panels on Climate Change.

Q.8 How satisfactory is the customer/contractor relationship?

8.1 ODNRI's predecessor units were placed on a customer-contractor footing in 1984-85 and ODNRI operates as a contractor of services on which ODA Headquarters has first call. Its major customers are Natural Resources and Environment Département (NRED) and the ODA Geographical Divisions. Through its commissioned work for NRED, ODNRI contributes to the technology base needed to support development in the natural resources sector. Country-specific technology transfer and development projects are commissioned by the Geographical Divisions. ODNRI also wins business in a competitive international market from other donors, both multilateral and bilateral, and from private sector consultants and manufacturers. The breakdown of operational time in 1988-89 was as follows:

	Percentage	Financed by
Research and development which is not country-specific (technology generation)	42	ODA Headquarters: NRED
Technical co-operation assignments (mainly technology transfer)	23	ODA Headquarters: Geographical Divisions
External contracts (mainly technology transfer)	8	Bodies outside the ODA (eg World Bank, EC, other bilateral donors)
Core activities (eg advice to HQ; library enquiry and publications services; innovative research)	26	ODA Headquarters

8.2 The successful application of a customer-contractor relationship between a government department such as ODA and an in-house institution such as ODNRI depends on a number of factors. Chief among these are the following. The customer needs to recognise that technology generation (at least in the natural resources sector) has to be underpinned by strategic research (ie to formulate new technologies from existing knowledge) extending over many years requiring a long-term perspective on the part of the customer and a willingness to sustain strategic research funding accordingly. The customer should allow the contractor a degree of freedom to make professional judgements and to manage resources within a carefully defined specification of objectives, time and money covering specified programmes of work. The customer should also be willing to provide some resources which the contractor may use to explore what he (the contractor) judges may be promising new areas but where the likely outcome cannot be closely defined. The contractor, for its part, must be prepared to look beyond narrow professional issues to the wider context of the work and to be familiar with the basic techniques of project appraisal, specifying outputs, setting targets, monitoring progress and evaluating results. It must also possess well defined internal management systems. Both parties need to keep in close touch with one another; and there should, if possible, be opportunities for staff to move in both directions.

8.3 In the case of the ODA and ODNRI these conditions have been or are being, met by the following:

- Natural Resources and Environment Department has produced a Research Strategy for Renewable Natural Resources which is being used as the basis for commissioning technology generation R&D from ODNRI (and other bodies).
- An important aim of the research Strategy is to consolidate research into programmes whose management can be delegated outside ODA Headquarters. ODNRI will be one of the prime contractors under these arrangements, with responsibility for managing a number of programmes in its specialist fields, and sub-contracting where appropriate to extramural sources of expertise.
- Under its core commissioning arrangements ODNRI is permitted to devote up to 10 per cent of operational man-years to innovative research. The provision has been underutilised in the past, because of other claims on time; but it will henceforth be an explicit part of ODNRI's new concept of programmes, which aims to link cognate activities across the research development and dissemination spectrum.
- NRED research programme documentation now takes the form of memoranda which pay particular attention to the developmental problem being addressed; to the setting of targets for the work and ensuring the means are available for the outputs to reach the intended users; and to the risks. As explained to the Sub-Committee on 5 April, ODNRI has developed improved management systems,

our economists have been closely involved in devising programmes and ODNRI staff are being introduced to project appraisal techniques through a series of workshops.

- (e) Natural Resources Advisers in ODA Headquarters keep in touch with their counterparts in ODNRI through a network of liaison groups and committees. Contact also arises through the policy and advisory work outlined in paragraphs 4.1 and 4.2, through joint training courses and through the annual Natural Resources Advisers' Conference.

May 1989

Memorandum by the Overseas Development Institute

Over the past 15 years, ODI has been involved in a range of research, advisory and information-exchange activities addressing policy and management issues, in science and technology for Third World countries, principally in respect of renewable natural resources.

The observations we offer below draw on this experience, and on the work ODI has conducted since 1984 in its support to the All-Party Parliamentary Group on Overseas Development (APGOOD).

Our first observation is drawn from an ODI-published report prepared by APGOOD in 1985 on UK Aid to African Agriculture. The report noted the general context of declining overall disbursements of UK aid in real terms, commenting in particular on the deleterious effects of reductions (particularly in technical assistance) to African agriculture. Within this context it noted the generally high standard of UK-funded agricultural research, but drew attention to the major need for continuity and patience in developing technologies for smallholder rainfed agriculture. The timescale of funding had been too short, and provision of technical staff too discontinuous, in much of the UK effort to provide the stability necessary for agricultural research to bear results. The report argued that long-term technical co-operation arrangements are necessary if the continuing decline in the capabilities of African research institutes were to be arrested and reversed.

In subsequent research on the impact of UK agricultural aid to Kenya, Tanzania and Malawi, ODI evidence suggests that there are distinctive UK aid strengths not only in basic research but on a range of related specialist technical services to agriculture, including crop protection, animal health, soil conservation and the supply of seeds and improved breeding stock. This research (part of a wider World Bank instigated review of donor assistance to African agriculture) supported the view of the earlier APGOOD report that the UK aid programme to Africa should stress scientific and technical support to ministries and research centres in the natural resources sector.

The APGOOD report drew attention to the likely negative consequences of reductions in ODA support to the UK-based scientific units (then TDRI and Land Resources Development Centre—now Overseas Development Natural Resources Institute). Nevertheless, the reductions in activities which ODNRI has had to face have continued into the late 1980s. In the year 1977–78, for instance, the institutes now combined into ODNRI provided a total of 639 man-years of scientific and technical effort. By 1982–83 this had declined to 497, and by 1986–87 further declined to 401. Given that ODA provides almost 90 per cent of ODNRI funding, these reductions can be attributable largely to a withdrawal of ODA resources. It is not our view that the demand for such services from overseas governments has declined.

Our second observation is more positive on the UK expenditure record and it concerns the natural resources research strategy formulated by ODA in 1988. This seeks to guide the allocation of all ODA research resources (whether provided to ODNRI, to international centres or to other UK institutions) into areas likely to generate greatest benefit to developing countries per pound of expenditure. The strategy provides a welcome framework for resource allocation and a useful mechanism for commissioning research through awarding responsibility for “managed programmes”.

The majority of these within the UK have been allocated to ODNRI. This will allow the Institute to expand staffing in agreed areas or to sub-contract to other UK centres of expertise. The strategy envisages an increase of some 60 per cent in funding for R&D conducted or managed by ODNRI. This will be offset to some degree by a reduction in core funding, but nonetheless represents a welcome increase in UK funding for renewable natural resources R&D.

Following the highly successful research and development into export commodities characteristic of the colonial period, UK-funded R&D appeared for two to three decades unable to find an identity (apart from its continued leadership in some areas of pest and vector management). Without wishing to interpret the new strategy in too optimistic a light, it is beginning to appear that such an identity is now emerging at two levels.

First, several UK institutes are among the world leaders in areas of biotechnology, and patterns of collaboration are now emerging (eg between the UK and India) which permit the sharing of this experience on the basis of a “partnership between equals”. In our view, funds need to be allocated to the adaptation of these arrangements to suit other developing country circumstances.

Second, the thinking in ODNRI and elsewhere prompted by the strategic initiative is leading to the conclusion that the International Agricultural Research Centres, while providing much support for the relatively well-endowed areas of developing countries, have relatively little to offer to the difficult and more marginal areas where the physical environment is subject to great stress due to demographic, and possibly climatic, change. The Centres cannot easily provide, for instance, the type of long-term technical co-operation which is essential to the development of improved and sustainable technologies for these areas. It is our view that there is a wealth of experience on which a UK comparative advantage for R&D in such areas might be built. We also believe this is now being brought together and we would support any move to enhance resources allocated in support of it.

Professor John Howell (Director)
Dr John Farrington (Research Fellow)
June 1989

Letter from OXFAM

Oxfam has a general concern about the growing technological dependence of many poor countries, especially in Africa, on western technology; and the fact that most aid programmes financed by Britain and the EEC worsen this dependence. For instance in the sector of transport Oxfam, other non-governmental organisations (NGO's), and donor agencies have spent very large sums in the last five years on supplying trucks for countries like Sudan, Ethiopia and Mozambique mainly to assist in the transport of relief supplies. Donors have given a vast range of different models of trucks, and even apparently similar models have many different detailed specifications which make it extremely difficult to maintain a supply of spare parts. Emergency interventions by NGOs are usually only funded for a short time; and once the emergency is over the equipment brought in by the donors is often handed over to local organisations or government agencies. Almost all recipient countries face major difficulties about finding the foreign exchange needed to purchase spare parts; while many face problems about finding experienced mechanics and managers to keep fleets of imported vehicles on the road.

As a result the majority of trucks and other vehicles donated in emergency programmes have a short life-span. The current situation suits the suppliers quite well, as this high wastage and short life span of vehicles increases their export sales in sub-Saharan Africa. What poor countries need, though, are vehicles which are designed for easier maintenance and durability. ODA and other EEC donors either need to assist European manufacturers to redesign their current models of trucks so that they become more appropriate for poor countries, or they should change their rules so that European aid funds could in some cases be used to buy more appropriate vehicles like the Indian-made Tata truck.

In terms of smaller vehicles the British Land Rover has largely lost out to Japanese manufacturers over the last decade: the current models are difficult to maintain, and reflect largely the needs of the European market and its demands for speed and comfort. Given the large number of Land Rovers purchased by the ODA we believe that ODA could play a much more dynamic role by offering Land Rover technical collaboration on a joint project to design a vehicle appropriate to the needs of poor countries. ODA could then do more to finance the development of local Land Rover assembly plants and smaller workshops for the fabrication of spare parts.

In summary then we would like to see ODA exerting a greater influence with suppliers of vehicles, especially Land Rovers, with the long-term objective of ensuring that any vehicles sent to developing countries are as appropriate as possible. With the approach of 1992 and the single European market we hope the ODA will use its influence to ensure greater awareness amongst European truck manufacturers about the special transport needs of poor countries.

Hugh Goyder
28 June 1989

Letter from the Oxford Forestry Institute

The following written evidence distils the experience and ideas of several professional staff of this Institute. The Oxford Forestry Institute (OFI), within Oxford University, has for 60 years provided education, training, research and advisory services in tropical and temperate forestry (earlier under the names Imperial and Commonwealth Forestry Institute). Most of our 40 professional staff have experience overseas and the OFI is now established as the Manpower Centre for Forestry of the Overseas Development Administration (ODA). In this capacity we provide short-term consultancy services in all aspects of planning, preparing, executing and monitoring ODA-supported bilateral projects and some multilateral activities.

The OFI has also been asked by ODA to take over the management of its centrally funded forestry research and development programme. We are still negotiating the conditions under which this would occur but in principle it should lead to a better management of ODA's resources to meet stated forestry research policy objectives; the recent extreme staff shortages in ODA itself have encouraged administration of budgets rather than targetted management and projects. There is always a danger that a determinate project may become a political convenience rather than an aid to development.

I should add perhaps that the Institute was involved in the preparation of ODA's objectives for forestry and agroforestry research. Thus the bulk of my comments must be seen in the light of this involvement with ODA and they will be heavily biased towards forestry, agroforestry and related resource development.

Objectives of UK Scientific Aid

The preparation of ODA's natural resources policy document has been a major advance in the rational use of limited financial and manpower resources. At least for forestry it identifies clearly those objectives and subjects that are likely to have a major impact on the majority of poor populations in a large number of countries in the main target regions (Southeast Asia and Africa). In common with most donor agencies ODA supports projects that will benefit rural rather than industrial development (though not exclusively—see for example the Karnataka Mysore Paper Mills project which has major industrial and only minor rural development impact). The bulk of ODA forestry projects are well reputed among the recipient countries themselves, by other development agencies, and by other professionals.

Priority Identification

The policy document and the recently announced forestry initiative have identified topics for research and benefits from development projects. The identification process involves socioeconomic analysis of national development priorities in the individual countries while monitoring and evaluation are carried out carefully and repeatedly on all funded projects. In common with other donors ODA is criticised for the length and complexity of the project cycle (sector analysis, project identification, preparation, appraisal, monitoring and evaluation) but the UK is recognised as one of the donors with the most sensible projects and sensitive analyses (analyses carried out by skilled and experienced people in collaboration with local staff in the light of current political, administrative and institutional constraints).

Trends in UK Policy

The major event in policy has been the preparation and publication of the recent policy document itself (described above). The most obvious trend in recent years has been the recognition of the place of forestry in the development process, in the maintenance of agricultural production and sustainability, and in the maintenance and enhancement of the environment for human populations and their domestic animals. The benefits derived from forests and trees have long been known to professional foresters but only recently have they been more accepted by agronomists and economists. The long rotation of industrial tree plantations has often mitigated against the identification of positive financial benefits when analysed by traditional economic analysis and it is now being recognised that methods must be found for the economic evaluation of service and non-market benefits of trees.

Another trend now visible in UK overseas aid policy is the recognition of the important potential of agroforestry (deliberate, intimate mixtures of trees, crops and/or animals in systems that meet many economic and environmental objectives in sustainable and culturally acceptable ways). Development projects now tend to favour the individual or family land owner rather than community or industrial woodlot plantations. This is a desirable and effective development but it is more difficult and perhaps more costly to implement than a single large industrial project. However, in general, we feel that UK aid should be provided in "small packets" to achieve specific and often localised benefits that are reasonably clear and achievable with the infrastructure available. Many small projects are likely to have more rural effect than large single projects if they can grow around the original nucleus after any expatriate specialists leave; however, it is also necessary to strengthen general forestry infrastructures at the same time. It must be stressed that small does not imply short-term; this approach often requires greater sensitivity and sustained attention than the conventional industrial project.

A third, equally desirable trend is the emphasis on the management of natural vegetation including particularly the tropical rain forests worldwide and the savanna and Sahelian types of drier vegetation in Africa. There is now global recognition of the importance of rain forests to the world's climate, soil, and water resources and of the value of dry forests to man and his animals. The ODA forestry initiative recognises this and ODA has recently allocated a major sum to the Worldwide Fund for Nature (WWF) for natural forest conservation and management; to date, it must be said, ODA and other donors have paid lip service and some real money toward "conservation forestry" without emphasising the need for planned and sustainable management and use of products from such forests. Not enough is being done in any tropical country to research enrichment planting and productive management of natural forests which can generate local industries, employment, diversity of income and sustainability of environment with obvious benefits to local populations living in or near the forests.

A desirable trend that is not yet visible in UK aid (but may be more attainable with the research management mentioned earlier) is the provision of long-term assistance. Like most aid agencies ODA and

many British charities have three or five-year time horizons for an individual project and often annual or biennial budgeting. This is clearly inadequate for developments involving research on new land use systems, the planting of long-lived crops such as forest trees, or the socioeconomic enquiries needed for either of these.

Adaptation of Aid to Needs

As indicated above research and development priorities are identified for each country by UK aid staff in association with local staff. As far as possible the projects are designed to be managerially and biologically feasible while being socially and politically acceptable; they address issues of production or environment that have immediate local importance and usually regional implications.

Most ODA forestry projects have elements of training and institution building with the object that the findings or developments of projects can be implemented or sustained after the projects cease to have British inputs. It is true that the UK alone cannot support all desirable projects in any one country and certainly not in all countries; it is therefore desirable that ODA collaborates with other donor agencies in agreeing topics for support and this process is now regularised and semi-formalised through the forest donors group meetings within the Tropical Forestry Action Plan (TFAP). This is an initiative of all the major donors to identify major research and development resources to the resolution of such problems. The UK has participated already in a number of country forestry sector studies in which local representatives meet with donor representatives to review the entire forestry sector and identify priorities for projects and possible sources of finance. It will be highly beneficial to the UK as well as to TFAP itself if a research specialist post within the TFAP co-ordinating unit in FAO, Rome, can be financed and staffed by the UK.

Bilateral v. Multilateral Funding

The UK is already committed to multilateral funding of forestry and related activities through the World Bank, FAO and other UN agencies, regional development banks and the Consultative Group for International Agricultural Research (CGIAR). The major theoretical merit of such support is its potential power to bring large intellectual or political pressure to bear on particular problems. The major demerit is the additional, international bureaucracy and costs which work principally to the disbenefit of the intended beneficiaries and to the frustration or discouragement of expatriate and local project staff.

Many donors prefer to give aid through bilateral systems whereby they have more direct control and influence; ODA can employ known British staff as expatriate specialists and there is a possibility to provide training for nationals in British institutions while also providing field training opportunities for young UK professionals. This latter point is becoming increasingly important as the stock of "old colonials" is declining and the need for younger, experienced staff is increasing with enlarging and diversifying aid budgets or interest. We are falling rapidly behind other donor nations in the number of young trained nationals available. Furthermore, there is an urgent need for a career structure for professionals within the aid system.

Bilateral projects allow the maximum input and recognition of the benefits (or problems) of British equipment, training methods, field systems and personnel. A successful project that is recognised as such by the recipient government and local populations and professionals can cement permanent friendship and attachment to the UK and its institutions even after very modest expenditure. Such projects also offer opportunities for immediate provision of British equipment during the project itself and hopefully also on a larger scale afterwards. (Some of the benefits for aid to the donor country are indicated in the paper attached.)

In this Institute we feel strongly that research and development projects are most likely to achieve their objectives through bilateral mechanisms particularly when British institutions have direct involvement with the field projects (rather than through imposed regional networks). This is not to say that network research has no place; indeed networks are an effective way of sharing resources and minimising unnecessary duplication of research effort but the networks should arise from the bottom up as local institutions recognise the benefits and express the wish to participate. The UK, through research projects based at Oxford, has created and supported genetic resource networks for some 25 years; it could expand these and support new forestry research networks with positive benefits immediately.

A very effective way of training scientists in developing countries is to provide small research grants for the local scientists themselves and to support collaboration from British institutions; such collaborative research can help improve the often poor quality of third world research which results from scarce opportunities and resources for their younger scientists to do practical research with more experienced scientists. It is certainly a way of promoting the kinds of research and professional links that are seen as being of particular interest to the British Government and to British scientists.

I hope these ideas and comments will be of use to your Sub-Committee. I and members of the OFI staff will be prepared to give oral evidence if required and given adequate warning. (Many of us are overseas at any one time.) Please let me know if you need further information.

Dr J Burley
Director
3 April 1989

**Memorandum by Dr Omar Abdul Rahman, Science Adviser, Prime Minister's Department, Malaysia
and Chairman, Commonwealth Project on Strategic Planning on Science and Technology and its
Integration into National Development (COMMANSAT)**

Scientific and Technical Aid—Current Status

1. The official channels for British assistance to Malaysia are the British High Commission and the British Council. Other vehicles of British/Malaysia co-operation are the Malaysia British Society and the British-Malaysia Society, the British Malaysia Industry and Trade Association and the Commonwealth through the Commonwealth Scholarship and Fellowship Plan and the Commonwealth Development Corporation.

2. The British Overseas Development Administration (ODA) funds a large Technical Co-operation Training Programme which enables some 150 Malaysian public servants to train in UK each year, a big proportion in the area of science and technology. In addition there are British Commission's Awards providing tuition fees in Britain for 75 Malaysian students each year in undergraduate and graduate courses. Again more than 50 per cent of these are in science and engineering.

3. The ODA also provides funds for collaborative projects between Malaysian and British institutions of higher learning which is co-financed by the Malaysian institutions concerned. This project, administered by the British Council, provides for academic links either for research or for course developments in Malaysian institutions.

4. The research activities, at present, are mostly of academic nature and are proving to be increasingly mutually beneficial to institutions concerned.

5. The second activity is currently more in the development of MSc courses in the Malaysian institutions and involves staff exchanges mainly.

6. The overall performance is judged satisfactory. But, while there is need for this type of activities to continue for some years to come, co-operative programmes between Britain and Malaysia can benefit from a gradual change to a "higher plane" of research partnership.

Points for Consideration for the Future Activities in Malaysia

1. A new strategy for S&T development was formulated for the Fifth Malaysian Plan (1986–1990) involving strengthening the S&T planning and management system, improved resource allocation to R&D, prioritisation of R&D activities and increasing S&T role in support of industrial development. Out of the above the Intensification of Research in Priority Areas (IRPA) procedure has developed. This involves:

- R&D priority determination at national and institutional levels;
- formulation of research proposals based on the agreed priorities;
- peer group appraisal of proposals and continuous monitoring and evaluation.

3. IRPA encourages research in exploitable areas of science and in other targeted areas in support of industrial development.

4. The Government is currently reviewing the strategy in preparation for the Sixth Malaysia Plan (1991–1995). This is a good time and opportunity for Britain to take the initiative to review the British/Malaysian scientific collaboration to be in concert with and supportive of Malaysia's development objectives.

5. In the light of new trends in aid relationship where collaboration and partnership is gaining favour. British aid programmes in Malaysia may be reviewed to encourage such relationship. This involves partnership of public sector research institutions and universities with the private sector on R&D projects which are selected based on potential commercial exploitability.

6. R&D activities of the above nature, linked directly to the productive sector, have elements of applied and developmental research for commercialisation with implication for venture capital. The activity may be facilitated by partnership of a UK based technology park with the Technology Park Malaysia in Kuala Lumpur.

Management of Science and Technology

1. The experience of COMMANSAT indicates that there is widespread weakness in developing countries of the Commonwealth in indigenous capability for the following:

- Strategic Management of Science and Technology;
- Technology Information and Technology Assessment;
- Commercialisation of Research and Technology Venture Management.

2. The reason for the weakness is multi-factorial involving organisation, procedure, linkages, manpower, etc.

3. In view of the above a very important area of assistance and collaboration between the United Kingdom, bilaterally or multilaterally, with the developing countries of the Commonwealth is in the management of science and technology.

4. COMMANSAT, which is an activity of the Science Management and Organisation group of the Commonwealth Science Council (CSC) focuses its attention on S&T management issues. Presently however, it is severely constrained by lack of resources. Malaysia, with the support of other members of the CSC involved in COMMANSAT, is seriously considering to put forth to CHOGM at Kuala Lumpur in October 1989 a proposal calling for a Commonwealth-wide initiative in co-operative action to address science and technology management issues including training for technology venture management.

5. Support from the British Government for the initiative will go a long way towards redressing the above important but much neglected area.

7 April 1989

Memorandum by the Remote Sensing Society

Executive Summary

1. Remote sensing provides unique and valuable information at a variety of scales concerning land and sea surface conditions. Such information is used in environmental management and monitoring, engineering project management, mineral exploration, agricultural monitoring and meteorology (paragraphs 1.1, 1.5). Given the increasing international concern over environmental issues, remote sensing must play a more prominent role in the assessment of aid schemes (paragraphs 1.1, 2.2).

2. Remotely-sensed data are an essential input to a Geographical Information System which brings together all kinds of spatial data, both cartographic and tabular, to form a powerful management tool for the applications listed above (paragraphs 1.1, 4.3).

3. The UK has considerable expertise in handling and interpreting remotely-sensed data and in the development of Geographical Information Systems. This expertise resides in universities and polytechnics, research institutions, government agencies, and in commercial consultancies. The Remote Sensing Society provides a national and international focus for these activities (paragraphs 1.2, 1.3, 1.4).

4. Unfortunately, UK policy and practice in the area of Overseas Aid has never successfully linked technological developments in the fields of remote sensing and Geographical Information Systems. This attitude is in strong contrast to the activities of other donor countries (paragraphs 2.4, 3.1, 3.4, 4.1, 4.2, 6.1).

5. We believe that the organisational and institutional framework of the Overseas Development Administration is not conducive to the development of efficient and co-ordinated scientific and technical input to aid programmes (paragraphs 3.1, 3.2, 4.1).

6. ODA should become more closely involved in research programmes and market surveys in the fields of remote sensing and Geographical Information Systems in order that suitable hardware, software and operational procedures can be developed within the framework of the UK aid programme (paragraphs 2.1, 4.2).

7. Such research and development should not concentrate solely on "high-tech" solutions (paragraphs 4.3, 5.1).

8. An education and training element is a vital long-term component of any technical aid programme (paragraphs 4.3, 5.2, 5.3, 6.1).

9. Although there is evidence to show that some of the activities of international/multilateral aid agencies to which the UK contributes are inefficient, there are good reasons for continuing to support their activities (paragraphs 6.2, 6.3).

1. Background Information

1.1 Environmental Remote Sensing is the process of acquiring, processing, displaying and interpreting image and profile data describing the condition of the atmosphere and of the earth's land, ocean and ice surfaces. Local coverage is acquired from aircraft, but the primary source of wide-area earth observation data is the suite of sensors carried by satellites in geostationary or in near-polar orbit. The uses of remotely-sensed data are summarised in the report of The House of Lords Select Committee on Remote Sensing and Digital Mapping (1983) and are listed in paragraph 1.4. The major characteristics of satellite remote sensing are its wide geographical coverage, repetitive nature, and digital format, making the data suitable for monitoring changing environmental conditions using computer processing. For the developing countries, much of whose wealth lies in their natural resources, the capability to manage these resources is of great importance. Remote sensing, from aircraft and satellites, can thus provide a cost-effective information source for agricultural and engineering projects for project planning, control, operation and monitoring at both national and international scales. On a global scale the monitoring of the biosphere is now recognised as a task which has international implications. Recent developments in the handling of all kinds of digital geographical data have led to the production of information systems designed to store and manipulate such

data with consequent benefits to management and policy-making. Remotely-sensed data provide a unique input to Geographical Information Systems (GIS) and the use of remotely-sensed data is seen as providing the greatest value to managers when integrated with other spatial data within the framework of a Geographical Information System.

1.2 The Remote Sensing Society was established in 1974 in order to bring together the wide variety of disciplines involved in remote sensing and to promote the subject as a whole. It was the first such society to be set up on a national basis and it now has a considerable international standing with about one-third of its membership residing or working outside the UK.

1.3 The Remote Sensing Society serves the interests of scientists, engineers, commercial companies, government, and international agencies and educators in three main areas, namely:

- the design and development of sensors and platforms;
- the applications of remotely-sensed data in research and in such fields as environmental management, highway engineering, weather forecasting, and agricultural crop monitoring;
- communications and computing.

A feature of the Society is its close links with academic, commercial, industrial, governmental and international interests in the subject. The Society is affiliated to the International Society of Photogrammetry and Remote Sensing and takes an active role in promoting the international co-ordination of remote sensing.

1.4 The main area of application of remotely-sensed data that are relevant to aid programmes are:

- environmental monitoring (weather and climate, hydrology, land-cover change),
- agricultural crop monitoring,
- forestry and vegetation,
- engineering project design,
- exploration geology,
- cartography,
- snow and ice monitoring,
- oceanography

at scales ranging from local (aircraft-borne sensors with resolutions of 5 m and less) to regional and global (satellite-borne sensors with resolutions of 10 m and 5 km).

1.5 The Remote Sensing Society, in providing evidence, has directed many of its comments to the organisation and structure of the Overseas Development Administration (ODA), since this is the principal UK organisation which has responsibility for administering and managing Britain's aid programme. Similarly, ODA often provides the interface between the UK and such organisations as the World Bank, UNICEF, UNDP, FAO, WHO and the European Community Aid Programmes. The role of non-governmental organisations (eg OXFAM, Save the Children Fund) in providing aid is not considered.

2. *Perceived Objectives of UK Scientific and Technical Aid*

2.1 The objectives of the UK's aid programme, as defined by ODA, appear to fall into four categories:

- aid for agriculture, rural development and food security;
- aid for health and population;
- aid for energy;
- aid for engineering projects for infrastructure development.

British aid is primarily directed to long-term economic and social developments.

2.2 Aid programmes must be sensitive to the effects on the environment. For many aid programmes it will be important to pay special attention to environmental conservation. Remote sensing techniques have an important role to play in this area. Many of the UK's aid programmes to developing countries are related to changes and development of land use in the recipient countries. With increasing global concern over climate change, the greenhouse effect and depletion of natural resources it is important that, where appropriate, environmental impact assessments are conducted, supported through the aid programme, to ensure that the ecological balance is maintained. Specifically, the social and economic consequences relating to the effects of tropical deforestation, soil, erosion, desertification and other environmental factors will need to be monitored and evaluated, alongside many of the existing and future aid programmes. The repetitive and synoptic capabilities of remote sensing satellites will play a key role in this regard.

2.3 The Aid/Trade provision, formulated jointly by ODA and the DTI, was established in order better to promote British exports overseas, including developing countries, in the face of foreign competition. In encouraging British exports in this way, considerable emphasis has been placed on science and technology. Unfortunately, the way in which the Aid/Trade provision has been implemented and administered has resulted in only very large contracts of the order of tens of millions of pounds being generally considered

and processed. Consequently, many opportunities to promote UK expertise and technology in the field of remote sensing have been lost. It is notable, for example, that few of the member companies of the British Association of Remote Sensing Companies (BARSC) have been involved in the Aid/Trade provision. (BARSC represents British Companies involved in the provision of hardware and software in support of remote sensing activities and companies concerned with the application of the data). If the Aid/Trade provision were better able to cater for small initiatives, many of which would be better suited to the development needs of the recipient countries, this would be welcomed. Remote sensing technology and applications would benefit from such an approach.

3. *Priorities and Identification of Projects: Execution and Evaluation*

3.1 The current organisation and institutional framework of the ODA is not conducive to the development of efficient scientific and technical input to aid programmes. For example, it is understood that the scientific institutions of ODA play little role in developing aid policy; the institutions are generally not well co-ordinated in their technical assistance and research programmes and have recently been subject to cut-backs and rationalisation.

3.2 It appears that the Development Divisions within ODA are organised in such a way that it is difficult for appropriate scientific and technical inputs to projects to be fully evaluated and adequately implemented. Current technical staffing levels are limited and technical and scientific criteria are often given a lower priority by the economists and administrators in evolving aid projects and overall policy in a region. Relevant technical knowledge is often lacking and staff not available to cover specific interests. This is particularly true in the case of areas which are initially technically and financially demanding, such as remote sensing and Geographical Information Systems.

3.3 The domination of ODA by economists and their power to overrule technical advice can be counterproductive to identifying and executing aid programmes. It is notable that the revised version of the ODA guide "Appraisal of Projects in Developing Countries" is aimed at economists, in both the donor and recipient governments, although ODA procedures for assessments are said to cover technical, economic, social and environmental aspects. For example, it is not unknown in the recent past for aid programmes agreed between the technical specialists of ODA and the recipient government, to be changed following economic and social evaluation procedures with the result that the recipient government has subsequently refused to accept the revised programme, leading to embarrassment and detriment to good relations.

3.4 In comparison with the UK, other nations aim to develop their own national technological strategies through participation in aid programmes. For example, the promotion of national technological skills and expertise through aid programmes is well demonstrated by the French government, especially in the field of remote sensing. In France, government and industry work closely together and French aid is used to develop and extend national commercial interests and influence. French technical experts from government are also in key overseas institutions such as AIT in Bangkok to develop interest in national French technology programmes, training, and associated commercial activities. Recent seminars held in India and Nepal, presented by the French government, have helped promote the use and sales of data from the French remote sensing satellite SPOT. This has led to the development of commercial interests in equipment, consultancy, training and education. Frequently, small investments of aid in such technical co-operative programmes can trigger much larger funding from international aid agencies such as the World Bank.

4. *United Kingdom Policy*

4.1 The scientific and technical component of overseas aid programmes appears to be inadequately co-ordinated. We are unaware of any initiatives to relate Britain's overseas aid programmes to national objectives in the important fields of remote sensing and spatial data management.

4.2 The ODA has been slow to include or promote remote sensing and GIS techniques in many of its aid programmes. As a result, the UK has been overshadowed, even in former colonial territories, by the technologically-progressive aid programmes of such countries as France, Australia, USA, Canada, The Netherlands and Germany in the field of remote sensing. With the increasing importance now being attached to the need for monitoring the environment and for assessing change, we believe that agencies such as the ODA will have to become increasingly involved in the use and application of remotely-sensed data. Research should now be focused on demonstrating that there is considerable scope for remote sensing and GIS applications within the UK overseas aid and technical assistance programmes. The results of such research programmes will provide a basis for the development of policies for the more beneficial use of remotely-sensed data within aid programmes.

4.3 The UK has a poor record at home in the co-ordinated introduction of comprehensive GIS systems. The reasons for this have been discussed elsewhere (Chorley Report, "The Handling of Geographic Information", DoE, 1987). The overseas arm of the Ordnance Survey, (formerly Directorate of Overseas Survey) is not therefore in an environment which would stimulate the development of innovative GIS procedures for which there is an exploding demand overseas. There is an urgent need to carry out a market survey of GIS needs in developing countries to provide the means by which UK technical assistance can responsibly address operational and training requirements. Existing institutions at ODA and DoE must

be encouraged to co-operate and be given resources to provide assistance in the development of what is a huge potential market.

4.4 Over many years there has been little evidence in the direct ODA aid programme of emphasis or promotion of UK scientific research or technology, such as that necessary to support remote sensing activities, except in very specialised areas such as tropical pest control.

5. Adaptation of Aid to the Needs of Recipient Countries

5.1 It is important that technology is graded so that appropriate methods are used. Although remote sensing techniques are considered to be technically sophisticated, many small and relatively cheap desktop image processing systems based upon personal computers are now available for trained users. Also, data acquisition can be achieved by "low-tech" remote sensing systems from light aircraft. UK practitioners should aim to achieve a reputation for providing relevant and appropriate advice and technology, and not just "high-tech" solutions.

5.2 It is important that qualified personnel are employed in aid programmes. The use of the "associate expert", as adopted by The Netherlands, Belgium and West Germany, provides a good model. The principle is to discover from UN agencies where professional staff are needed but cannot be provided within the UN budget, and then to fund and second young well-qualified professionals to fill these needs as UN employees. The young professionals are guaranteed employment in the home countries when the projects finish. In this way, the contributing countries build up a reservoir of staff with expertise in UN-type projects, while they are still fairly early in their professional lives. It is understood that France has such a scheme, but it is coupled to the French aid programme, rather than UN agencies. For the recipient country, it is often important that a "counterpart system" is operated, whereby every skilled worker sent from the donor country is "shadowed" by a national counterpart who will learn from him/her and eventually implement the practices which have been learned.

5.3 The aim of any aid programme is to improve the recipient's self-sufficiency. If technological aid is provided in the form of equipment and expert advice then it is essential to ensure that an education and training component is included within the package. Such a component should involve on-site training of local staff, in collaboration with local education and training institutions, together with increased opportunities for specialist training at postgraduate level in the UK. Such a strategy would increase the probability that the equipment would continue to be used adequately, and would maintain a link between the aid programme and the UK. Education and training will remain a very important element in technical assistance programmes for many decades. Well co-ordinated educational services are of inestimable value to recipient and donor countries, and should be expanded and carefully monitored.

6. Merits of Bilateral and Multilateral Funding of Scientific and Technical Aid

6.1 Overseas aid is provided to developing recipient countries in a number of ways, besides the division between direct bilateral funding and that provided through multilateral funding of international aid agencies, such as the World Bank. This includes military aid, activities of the British Council, the Aid/Trade provision and other financial arrangements through NGO's. There appears to be little co-ordination between these bodies and few formal links exist with major UK science and technology organisations such as the British National Space Centre and the National Remote Sensing Centre which are capable of providing expert advice and access to appropriate research, development and educational activities in Higher Education Institutes.

6.2 There is much evidence to show that multilateral aid organisations to which the UK contributes are wasteful of resources, staffed at enormous expense, and frequently duplicate studies and projects. It is considered that far more benefits may be derived both to the UK and the recipient country in a scientific and technological context if the funding of technical aid is undertaken on a bilateral basis.

6.3 There are, however, reasons for the continued support of multilateral funding; these include: (i) Multilateral organisations such as the FAO are politically neutral and for this reason widely acceptable; (ii) Multilateral organisations have enormous prestige attached to them which enables them to call on the best expertise from all over the world, at relatively low fee rates—publications of organisations such as the WHO and FAO are definitive; (iii) The physical size of some multilateral organisations enables them to support comprehensive facilities, such as technical libraries, GIS and remote sensing facilities; (iv) Many multilateral organisations provide language translation services and secretarial support.

April 1989

Letter from Paul Richards

This is in response to your letter of 29 June.

1. I have examined R&D initiatives in Africa in agriculture and resource management. There is some measure of agreement that returns to investment in scientific research in these fields since 1945 have been

disappointing, especially when compared with similar investments in Asia, where returns have often been dramatically favourable for a lower rate of investment per farm household.

2. My own current research (jointly with Professor Michael Lipton and Dr Adam Pain) has tried to pinpoint some of the factors responsible for the situation just described. Our work endeavours to draw comparative lessons from an examination of the history and impact of rice research in West Africa and South Asia, focusing on Sierra Leone and Sri Lanka in particular. A number of important points have become apparent during the course of this work:

- African tropical environments are often as intractable as they are variable. Degraded soils, or soils of inherently low potential, are widely distributed and help explain an historical pattern of low population densities. In these circumstances, to determine improved management strategies requires considerable investment of scientific time and effort, but even where the appropriate knowledge exists it may be of benefit only to relatively small numbers of farmers because of low population densities. Even in a small country such as Sierra Leone ecological conditions are highly varied. Here, typically, research problems are often intrinsically demanding (because the environment is impoverished, complex and little known) but there is a good chance that any solutions forthcoming, however ingenious, will only impact on a limited group of farmers in a restricted area. Small, underfunded stations working in these circumstances find it difficult to convince politicians of their intrinsic worth, and hard to motivate the best staff, when they feel any discoveries are only likely to have limited impact and applicability;
- these problems were understood at the end of the colonial period, and many reports on soils, land-use and agricultural development published at that time testified to a scaling down of earlier expectations about dramatic improvements likely to result from the introduction of “scientific” agriculture. There was a general realisation that local solutions, arrived at over many years of trial and error (itself an important potential source of scientific knowledge) would not easily be swept aside by untested proposals from outsiders, whose own lives did not depend on the correctness of their advice. There was some measure of agreement that best results were likely from an incremental approach to experimentation, firmly grounded in good and careful long-term study of the African environment in all its many dimensions;
- this understanding was largely swept aside in the 1960s. Socio-economic and macro-economic perspectives came to the fore and exercised sway over more strictly ecological and agricultural considerations. Many of the new donors in the field tended to assume that the answers to African agricultural development dilemmas were already well-known, either in their own country, or in some other part of the world with which they had had intimate experience. Lack of progress in a country such as Sierra Leone would tend to be put down to the lethargy of the colonial administration rather than being seen as a consequence of genuine environmental difficulties and the inapplicability of Kansas, or Taiwanese, or whatever, agricultural methods. In the 1980s, after 15–20 years of vigorously “pushing” simple packages of supposedly “improved” technologies, largely based on Asian green Revolution experience, many of the agencies are having second thoughts. The international research centres are currently paying considerable attention to the kinds of technologies needed by typical farm households in resource-poor regions. But the problem now is how to get demoralised, neglected, national research institutions back on their feet, to resume the less ambitious agenda first glimpsed in the 1950s.

3. Three points from our own research findings are relevant to this issue:

- (i) First, it is important not to exaggerate the lack of impact of local agricultural research in the last 20–30 years. Lacking official encouragement, and in spite of being athwart the fashions of the period, a number of national rice researchers in Sierra Leone have pursued undramatic, adaptive, lines of research, well in-tune with local needs, and now have results to show for their commitment. There is sometimes a problem in making these results “visible”, since pure-line selections from favoured indigenous rice varieties, say, readily slip back into the local community and resume or assume local names. Careful fieldwork of an anthropological nature has brought to light evidence that several of these modestly-improved varieties have had a considerable impact on rice farming in Sierra Leone, having been adopted in some cases by up to half of all farm households.
- (ii) Second, despite the blandishments of better funded centres overseas, there are (in Sierra Leone at least) a surprising number of competent well-trained scientists still at work (or willing, in cases where they have been diverted into other activities, to have their professional interests rekindled). Some of the younger generation of such scientists, having thought hard about the over-ambitious failures of the past 20 years, are particularly committed to the idea of a revitalised adaptive research, attuned to local needs and cultural norms.
- (iii) Third, building up local adaptive research capacities may require considerable reorientation on the part of donors. Local research may not lead to dramatic results, but nevertheless it can be both professionally rewarding and cost-effective. But for this to happen sustained support and good management are vital. Small and isolated research stations need external support in a number of areas. They need integration within a wider intellectual community (eg through appropriate link arrangements with national university institutions, international centres and overseas universities), a coherent long-term research strategy (and help in formulating such strategies), and (in some ways most important of all) effective mechanisms for interacting with client groups and responding to

client needs. Aid agencies have the resources to provide such professional back-stopping facilities, to encourage “unfashionable” lines of research, to fund new initiatives in the field of researcher-client interaction (eg various schemes for carrying out research on farmers’ fields, or jointly with members of the farming community), and to encourage new and appropriate standards for assessing, and making visible, the results of such work. They may need to change deeply ingrained ways of thinking about the form in which they offer assistance, however, if such support is to prove effective. Aid to the agricultural sector is frequently offered in 3–5 year “packages” (sometimes with the possibility of extension for another 3–5 years if success is already evident at the end of the first phase). Ecologically-specific adaptive research in tropical agriculture needs steady support over much longer periods (typically, 15–20 years from inception of the research to widespread adoption by the majority of resource-poor households). One Sierra Leonean research station director expressed the point the other day in the following terms. Whereas he was glad the aid agencies were beginning to support his station again after a gap of some years, he did not want a succession of expatriate experts on short-term contracts, because two years was hardly sufficient time to learn enough about the country, its diversity, people and needs, even to begin to plan a coherent and useful research programme, let alone time to carry it through to fruition. He would prefer resources to be invested in local staff, with some back-up from institutional linkages, allowing for the possibility of regular visits from overseas researchers with a long-term interest in the country and its problems. Because of historical ties, Britain still has a cohort of older scientists capable of assisting in this way, but it hardly needs to be added that this is a rapidly depleting resource. There are many discouragements to young British researchers interested in long-term commitments of this sort, not least a lack of sympathetic appreciation on the part of the research councils for the additional difficulties faced by doctoral students working in arduous rural conditions in Africa.

A concluding comment. There has been some debate about the likely impact of genetic engineering on tropical agriculture. New techniques of germplasm manipulation give plant breeders much greater freedom to “design to specification”. This freedom is likely to increase rather than diminish the importance of the interactive/adaptive linkages between researchers and their client groups. In such circumstances the socio-cultural insights and sensitivities of national researchers may be an important factor in harnessing the power of the new biotechnologies to the needs of the rural poor in the African tropics. In a situation where many African governments are lukewarm about research, or fail to appreciate its full potential, the aid agencies may have an important new role in helping prepare the ground for these anticipated changes. Britain has some historical responsibility to assist in this way. But to assume that responsibility attention will also need to be paid to the erosion of the home-based expertise which once supported ecologically-sensitive agricultural research in Africa.

Paul Richards

Reader in Anthropology, University College London, and Visiting
Associate Professor, Njala University College, University of Sierra Leone
25 July 1989

Memorandum by the Royal Institution of Chartered Surveyors

1. *Introduction*

This memorandum is a response by the Royal Institution of Chartered Surveyors to the invitation to submit written evidence to the House of Lords Select Committee on Science and Technology, Subcommittee I—Overseas Aid on the above topic. The specific points on which evidence has been requested are addressed in the following paragraphs of this memorandum.

2. *Objectives*

Until fairly recently the objectives of the UK scientific/technical aid programme seemed to be:

- (a) to provide assistance to developing countries in the disciplines and activities needed by them;
- (b) to provide assistance in those fields in which the UK had developed good and relevant expertise and experience.

In recent years this sectorial approach would seem to have been replaced and the emphasis is now more on financial effectiveness, local needs and the development of trade potential.

In the fields of surveying and mapping, land economy, and quantity surveying, this means that UK aid now varies in quantity and type so much from year to year that government departments and private companies find it difficult to retain overseas divisions dedicated to such work.

The programme also lacks long-term objectives. Feasibility studies are not always followed up. Recipient governments are not always helped to put assistance provided to long-term use. A strategic plan should be formulated, against which priorities can be measured and programmes reviewed on a regular and on-going basis.

3. *Priorities and Project Execution/Evaluation*

UK technical aid priorities are determined locally and regionally to fit in both with UK development strategies for the country/region concerned and, to some extent, with other bilateral/multilateral aid activities. In theory this is fine; in practice the procedures take so long that by the time a project is initiated the priorities may well have changed.

Project execution is, correctly, subjected to frequent review. However, government budget procedures are not helpful. Inflexibility in carrying over funding at financial year end, difficulties in capital asset management and lack of financial delegation all pose problems to project managers.

Internal project evaluation is carried out, though it is not clear to what extent the lessons learnt are applied to later projects. Nor is there sufficient monitoring of projects after their completion.

4. *Trends in UK Aid Policy*

Three trends are becoming apparent: to divert more aid expenditure to multilateral aid (eg UNDP, World Bank, EEC, etc.); increasingly to link bilateral aid to the development of trade potential; and to put less emphasis on trying to provide assistance in those fields in which the UK has first class expertise. These include surveying and mapping, land economy, and quantity surveying. The result has been a significant decline in the UK capability to provide services to third world countries in these fields, both under aid funding and on a commercial basis. A good example of this is in air photography.

5. *Aid and Recipient Countries*

There is a great deal of discussion and negotiation between UK (ODA) and a recipient country before an aid project is approved. However "host" countries often do not have enough expertise themselves to devise project requests, to decide on priorities and to question the technical solutions proposed. The UK has a good record, in its bilateral aid programme, of providing appropriate aid, especially in the scientific/technical field.

Of particular importance to developing countries is the need to build up an effective infrastructure, eg of technical departments in government. Many, perhaps most, aid donors look for quick returns, either in financial terms or in effectiveness. The long time it can take for infrastructural development projects to show dividends means that such projects stand much less chance of being accepted and funded, even though in the long term such development may be vital.

This is true in all surveying fields where the traditional approach to building up central government expertise and experience in surveying and mapping, land management and construction cost management, involving many years of "technical hand holding", training and direct assistance, is out of fashion. Many third world countries understand the need to initiate such projects but are pressed into accepting high-tech quick return ones instead.

UK aid projects usually require significant inputs, in kind or cash, from the recipient country. As a principle this is sound; in practice adherence to it can reduce the effectiveness of the UK inputs. More flexibility in the UK aid programme would be useful.

In the training field UK aid puts considerable emphasis on bringing third world students to the UK for training. More emphasis should be put into in-country training, backed up where required by funding for short study tours to the UK and other countries. This would be particularly effective in surveying and mapping, land economy, and quantity surveying.

6. *Bilateral v Multilateral Aid*

In general multilateral aid suffers from excessive bureaucratic overheads, delays and, in some case, political interference. The better agencies take a comprehensive view of the development of a particular country. Not all donors are as careful.

The UK should reduce its inputs to the multinational agencies. It should encourage those agencies to do what they are best at, ie help the third world countries develop good strategic development plans; and should assist them in doing this, both financially and with expertise. The bulk of the UK aid programme should then go into effective bilateral projects which fit into the global strategy for each country. UK aid should concentrate on those fields in which it has expertise and experience. These include surveying and mapping, land economy, and quantity surveying.

Almost every third world country needs assistance in these fields. If the multilateral aid agencies concentrated on defining those needs, the several countries, including the UK, with recognised expertise could concentrate on providing real assistance in a timely and appropriate way. At present it seems that the limited funds available from all aid sources in this field are being spent on a few very complex, very expensive projects.

Letter from the Science and Engineering Research Council

Thank you for your letter of 26 January inviting written evidence related to the terms of reference of this Sub Committee's enquiry.

At the outset I must tell you that the work of the Science and Engineering Research Council is of only limited relevance to this enquiry. I have no direct evidence on which to base any comment on the five specific points listed in your letter. However, following may be of background interest to the Committee.

The Royal Charter with which SERC (then SRC), was set up in 1965 described the objects for which it was established and incorporated as:

- (a) To carry out research and development in science and technology.
- (b) To encourage and support by any means research and development in science and technology by any other person or body.
- (c) Without prejudice to the foregoing paragraph, to provide and operate equipment or other facilities for common use in research and development in science and technology by universities, technical colleges or other institutions or persons engaged in research.
- (d) To make grants for postgraduate instruction in science and technology.
- (e) To disseminate knowledge concerning science and technology.

The Council carries out its objects by the making of research grants to scientists in higher education institutions; the provision of major central research facilities in its own establishments; the adherence to major international collaborative activities; and by the award of postgraduate studentships and fellowships. The objects in the Charter do not include reference to scientific and technical aid to developing countries but the Charter does state that the Council may pursue its objects in the UK or elsewhere. Direct or indirect scientific or technical aid is thus not debarred.

The Council's first priority, however, has always been, and I believe will continue to be as defined in the 1972 White Paper "Framework for Government R&D" (Cmnd 5046) to "sustain standards of research and postgraduate education in universities" (and polytechnics). Our most recent Corporate Plan published earlier this year defined our overall objective as "to promote excellence in research in science and engineering, covering both basic and strategic work, and to promote manpower training in the national interest". I enclose a copy of the complete document, which sets out in detail the Council's objectives for the coming years.

The Council does not include aid to developing countries amongst its objectives. We believe that the advancement of science itself can play a vital role in the improvement of social and economic conditions in all countries, including developing countries. The dramatic impact of modern communications—based on fundamental research in solid state physics which led to the transistor—provides an example. Modern pharmaceuticals depend on fundamental research in chemistry and biology.

The support we have given over the years to UK higher education institutions for research and postgraduate training has enabled them to stay at the forefront of excellence by world standards, and thus to provide a training resource for large numbers of postgraduate students from all over the world, including the developing countries. Our own training awards and fellowships are, however, available to applicants who have been normally resident in the UK, or the European community, for three years.

The major central research facilities which the Council supports are available for use by scientists of sufficient calibre regardless of country of origin. It would be unusual but not impossible for them to come from developing countries.

The Council's growing activities in disseminating knowledge concerning science and technology—as required by the Charter, and described in our Corporate Plan will help to spread the benefits of research results to the widest possible audience. None, however, is directly aimed at the developing countries.

Professor E W J Mitchell, CBE, FRS
Chairman
3 March 1989

Letter from the High Commission of the Democratic Socialist Republic of Sri Lanka

Please refer to your letter of 27 April 1989. The Ministry of Higher Education, Science and Technology of Sri Lanka has replied as follows.

Q.1. *How well is the United Kingdom's Science and Technical assistance adapted to the needs of your country?*

This is fairly well adapted to Sri Lankan needs. However, the number of fellowships offered could be increased together with the period of the fellowship.

Q.2. How does STA from the UK compare with that from other bilateral partners or from multilateral agencies?

UK assistance compares well with other assistance and is to an extent more useful in view of the comparable facility in regard to the medium of instruction and the educational background of the local students.

Q.3. How satisfactory are the mechanisms for discussion and decision making between the United Kingdom's Aid Agencies and your country?

These are very effective and have proved satisfactory for a number of years.

Q.4. What changes would you like to see in STA from the United Kingdom?

We would prefer more flexibility in respect of duration and type of courses.

C Monerawela
High Commissioner
30 May 1989

Memorandum by Dr T W Tanton, Institute of Irrigation Studies, University of Southampton

THE AUTHOR

My background is as follows. I was a research Scientist with ODA for seven years before becoming involved with the identification, supervision and evaluation of rural development projects. I am currently a lecturer in Tropical Irrigated Agriculture, spending one to two months a year in the field with various donor agencies.

As I no longer work for ODA my knowledge of ODA's present aid policy contains gaps, the paper may contain some inaccuracy in this respect. Comments are based on my observations on the impact of policies in the field.

The issues raised below are:

- (1) Agricultural Research.
- (2) Agricultural Development Projects.
- (3) Training.

1. RESEARCH

1.1 Organisation

The British research effort appears poorly organised and badly co-ordinated. It consists of a few research advisors within the Ministry who do their best to co-ordinate and manage many isolated research workers, both within the UK and throughout many countries. The result has been that although the research effort has had some isolated and notable success, particularly with isolated technical problems, such as overcoming specific crop disease or storage problems it has had little impact of significance in solving the major world problems restricting crop production throughout the World. (The exception is the ODA contributions to the international plant breeding programmes which have been highly successful).

To the outsider money appears to be allocated to meet budgeting constraints and loosely identified goals, with overall strategies and long term plans being secondary in the planning process.

For example, the two major factors restricting crop production in most of the unindustrialised World are poor rainfall (inadequate water) and problems within the farming systems. I would expect these to be identified as major issues and core management teams pulled together to develop a research strategy to overcome them, and to draw up research management, operation plans and budgets to meet the set objectives within these priority areas. The issues raised below are specific organisational problems which inhibit effective research.

1.2 Funds not Concentration on Major Issues

Much of the ODA research effort (excluding the funding of International Agencies) is widely dispersed and is spent on work conducted in British Universities or research organisations with staff working in the UK or by staff funded to conduct research at a large number of overseas research stations. Unfortunately, the major problems can only be studied within the farmers fields, as we already know that high yields can be achieved on research stations. The real problems lie in adapting the technology to the farming systems in the tropics. This can only be achieved by on-farm research.

The problem of the present research strategy is most clearly seen in Africa, where vast sums of money have been spent on research and where apart from plant breeding, it appears to have had little impact

on crop production (the exception is Estate agriculture where the technology developed has proved applicable).

The major problems are not identified and targeted for research, or if they are, there appears to be either no long term plan/policy to overcome the problems, or ODA are incapable of organising the technical programmes needed. For example, the major factor restricting crop production over much of the tropics is inadequate rainfall. It is feasible that much better use could be made of the water that does fall. Although ODA did have a research team in Botswana for many years looking into this problem the size of the research effort was much too small in relation to the size of the problem and the millions of people throughout the world who could benefit from improved practices. Of equal or more importance is the problem that although high yields can be achieved on research stations, yields for all crops on farmers fields remain low. An understanding of the constraints on the farming systems which restrict yields is the key to increased crop production in the non-industrialised nations.

I would expect the British research effort to be concentrated on specific important areas such as these.

1.3 *Crisis and/or Demand Driven Research*

The problem in the past is that funding for research has been crisis driven or demand driven by overseas organisations or other interested parties who request funding for their own pet projects. There appears to be no overall strategy to focus effort on the major constraints of crop production, or even to identify the importance of the many constraints within the farming systems of the World.

1.4 *Allocation of Funds*

The stated objective of aid is to increase the well being of the poorest people in the World, but in practice funding appears to be allocated on political grounds rather than to meet research priority needs. Money is allocated to various headings without any thought of how it will meet the overall objectives. For example, known headings are:

(i) *Funding of International Research Organisations*

This money is generally directed towards identified research objectives.

(ii) *General World Fund*

Considering the fact that most of the major problems facing crop production are not confined to individual countries this would be expected to be the major fund. In practice this fund is relatively small and tends to be spent on peoples pet projects (including my own) which generally fit into ODA's research objectives. However, this small fund is far too dispersed over priority areas to make any significant impact. Projects should be identified before budgeting.

(iii) *Regional Funds*

The above also applies.

(iv) *National Funds*

By far the largest sum of money is allocated to individual countries. The money is spent on isolated projects put forward by individual governments. Projects are generated from within countries and ventriloquised by advisors or consultants to the host nations. Unfortunately, the major issues restricting crop production are regional in nature, ie drought, salinity, farming systems, etc. This type of work can best be undertaken by long term work in regional centres. Unfortunately, nations are unwilling to see hard currency, which was earmarked for their country, being redirected to other countries to solve their problem, as they often see the contributions more in the light of helping meet their balance of payments and creation of jobs, than the importance that research can play in solving their long term problems. The lack of impact of most of the national research programmes probably justifies this view.

1.5 *Retention of Quality Research Staff*

ODA employ full-time administrative staff, a few research staff on long term contracts and many short term contract staff working overseas. The result is the number of good experienced research staff (with international reputations) are few. Good young staff are recruited on contract but leave after one or two contracts to join other international organisations. While this does provide a good training ground for young staff it gives ODA a poor balance between keen bright inexperienced staff and the guidance needed from the more experienced staff to identify and manage long term research objectives.

1.6 *Duration of Project Funding*

The nature of project funding leads to ineffective project development. Projects are funded for two to three year periods. The result is that research is planned on this time horizon. Researchers are often looking for better employment before the contract ends and even when projects are extended it often results in a complete turn round in staff. This is unsatisfactory since experience has shown that nearly all important research findings in agriculture take much longer to come to fruition.

1.7 *The Outcome of Present Policies*

- (A) The major constraints on improved crop production are not identified, or if they are identified, inadequate priority is given to overcoming them.
- (B) The amount of money spent on research is fairly modest and is dispersed too thinly to make a major impact on the most important problems.
- (C) The average standard of research is poor and teams are often staffed by inexperienced staff or second class older staff who have failed to obtain more stable employment.

1.8 *Policy For The Future*

- (A) Research funding must cease to be crisis driven.
- (B) Major constraints in different farming systems should be identified and quantified.
- (C) A research programme should be drawn up to investigate and overcome the identified constraints. The size of the programme needed to make an impact on the problem should also be identified.
- (D) Most research funding should be allocated to tackling a few of the most important constraints so that a significant impact can be made in a short time period.
- (E) Regional centres and a UK base to support them should be set up to undertake the work with a career structure for the staff working at the centres.
- (F) Many of the major problems are related to the interaction between people, the environment, the land and the economy, and there is a need for a more multi-disciplinary approach with Economists, Agronomists, Sociologists, Engineers, etc. working together to develop and apply existing technology to the peoples needs. Such an approach needs large multi-disciplinary teams.
- (G) A career structure should be developed to enable ODA to retain good professional staff. The corps of specialists often fails to do this.
- (H) The term "research" should be interpreted much more widely to include developing methodologies for the improved development and implementation of rural projects.

2. AGRICULTURAL DEVELOPMENT PROJECTS

2.1 *The Funding of Projects*

The need for rapid agricultural development in the non-industrialised countries has attracted the attention of the industrialised donor countries. The result has been a rapid expansion in the numbers of large agricultural development projects funded throughout the non-industrialised nations. Unfortunately, the performance of these large and expensive schemes have, upon the whole, been very disappointing, with many of the schemes performing far below expectations.

ODA financed schemes appear to be slightly more successful than some of the larger donor agencies, but even so, their performance leaves much to be desired. The reasons for failure are many and diverse, ie weak management, slow rate of development, poorly trained or poorly motivated staff, inappropriate technology, economically unattractive technology for farmers, etc. However, all the causes of failure are the result of the introduction of an inappropriate technology or management practice into a new environment. In a commercial world pilot development projects would have been set up to develop and test the components of a particular rural development package within the environment of the farms. Unfortunately, within the aid sector the need to disperse large sums of money to the non-industrialised nations appears to take priority and overrides objective considerations on the optimum development strategy. Feasibility studies are conducted of all projects and all financed projects show at least on paper an appreciable return on investment. Unfortunately, all too often the assumptions made in developing the financial models place little emphasis on how the proposed project will fit into the governments administrative structures and how the project will be integrated into the rural and farming systems of the project area. It is standard practice to lift technology from research stations or from projects in other environments and assume that they will be just as effective in the project area. The result is they all too often fail.

2.2 *The Way Ahead*

The technologies and methodologies being proposed for rural development projects need developing to fit the rural environment in which they are to be implemented. New practices and technologies should be tested on a small but realistic scale before the implementation of large projects.

Unfortunately, this stage is unpopular with donor agencies and recipient governments as it

- (a) causes delay in implementation,
- (b) results in appreciable additional expense,
- (c) will also result in many proposed projects being cancelled.

However, it will enable poorly conceptualised projects to be modified to meet local needs and allow scarce resources to be directed only into viable projects.

ODA should therefore adopt a policy of initiating nearly all major projects as pilot development projects prior to financing the major projects. Although this is already done on a very small scale, there is a need to accept a development approach to all large projects.

3. TRAINING IN THE AGRICULTURAL SECTOR IN THE UK

3.1 *Administration of Students*

In general the British training programme is very well managed through the British Council, and students greatly appreciate this.

3.2 *Suitability of Training*

The main complaint I found when sending students on courses in the UK was that all too often the training they received was of little value to them in their home environment. They found it difficult to relate what they had learnt to the conditions under which they work at home. The students which benefited most were those that had been sent on very specialised courses and taught by staff with a wide experience in the tropics.

3.3 *Recommendations*

- (a) Students should be sent on courses specifically designed to meet their needs.
- (b) The staff on these courses should all have considerable experience in the tropics.
- (c) This should be achieved by sending students to a restricted number of centres to justify the employment of the relevant specialist staff.

Dr T W Tanton
April 1989

Letter from the Tsetse Research Laboratory, University of Bristol

Thank you for your letter of 26 January 1989 inviting me to submit written evidence to the Sub-Committee.

I am pleased to respond to this invitation but before doing so I think it would be appropriate to put my comments into perspective by outlining my own involvement with the United Kingdom's scientific and technical aid programme to developing countries. My experience is restricted to one disease of people and domestic livestock in sub-Saharan Africa (trypanosomiasis, transmitted by tsetse flies) over a period of more than 30 years. The first ten of these years were spent in Nigeria in the (then) Overseas Research Service of the Colonial Office and, since 1965, at the Tsetse Research Laboratory, of the University of Bristol, which is also an Associated Body of the Overseas Development Administration (ODA). During the last 20 years I have travelled extensively in the countries where African trypanosomiasis is endemic. Thus, I believe I can claim to have a broad general experience of Africa but detailed experience of only one small area of the aid programme.

The African trypanosomiasis cause both mortality and morbidity but their major economic impact has been to prevent the use of extensive areas of Africa by domestic livestock and, perhaps more significant, they have restricted the development of integrated farming systems involving both crops and livestock, common in tropical regions of other continents. The study and control of tsetse flies and trypanosomiasis is a field in which British scientists were pre-eminent in the colonial era and most of the key books on the subject over the years have been by British authors.

Since the colonial era, there has continued to be a major British involvement but workers from elsewhere, including the endemic countries, are now making significant contributions. In many respects the major post-colonial contribution by British workers has been more by accident than a result of deliberate policy decisions. Many individuals who had acquired their expertise in colonial times returned to Britain and obtained employment in institutions where they were able to continue their studies, others remained in Africa to assist the newly-independent countries (often under the OSAS scheme) and still others joined international organisations concerned with research or control of the trypanosomiasis. There was no policy to retain expertise in the subject area or to develop co-ordinated medium to long-term programmes of research or to assist African countries to control either the disease or the vector. Nevertheless, United Kingdom Government funding of the subject has never been ungenerous but has been directed mainly at short-term projects; as a result, some individuals have remained in the field more by luck than judgement but much talent has been lost.

I think three general lessons can be learnt from the example of trypanosomiasis (which I suspect is typical of the way in which the aid programme has developed generally in the agriculture sector in the last 20 years or so):

- (1) Scientific and technical aid should be selective. In this country, as elsewhere, we have our strengths and our weaknesses. Rather than spread aid thinly we should concentrate on those areas where we have strength.

- (2) Having selected key areas, the input should be sustained. Whereas it may be possible to build a bridge or a road in the time-frame of a three-year project, agricultural inputs should be over at least a 10 year period. Livestock projects in Africa in particular have had limited success (various authorities quoted by Jahnke, 1982, *Livestock Production Systems and Livestock Development in Tropical Africa*. Kieler Wissenschaftsverlag Vauk, Kiel) not least because of their limited duration.
- (3) Every effort should be made to retain expertise within the aid programme. The concept of the three-year project is wasteful of skilled manpower as many are not prepared to wait until the next contract comes along before deciding to seek more secure employment elsewhere. The belief held in some quarters that there is a large pool of appropriate scientific and technical talent just waiting to be employed on a contract basis is misguided.

In addition to these general lessons, I would like to enlarge a little on the impact of aid (not specifically aid from the United Kingdom) on the agricultural sector in Africa today. Despite the enormous sums of money that have been poured into Africa, the evidence is that the lot of the rural poor, far from improving compared to the better-off in the urban areas, is generally declining (Thomas, 1983, "The access route for peasants: still some roadblocks", *Ceres*, 96, 23–30). Obviously there are a number of factors contributing to this situation (political instability for example), many outside the control of aid agencies, but one must ask whether aid programmes could have done more to halt this decline. The fundamental problem is the low regard in which agriculture is generally held as a way of life in Africa; there is often little incentive for the rural poor to do more than eke out a living from the land. National governments clearly have a major responsibility—but, for example, increased food prices would not be popular with their influential and increasing urban populations. Aid organisations could and should assist by redirecting more assistance to support agricultural development in remoter areas, but they must also be prepared to commit themselves to a long haul rather than short sharp bursts of activity. Such aid should not be about time-limited "projects", however much aid organisations dislike open-ended commitments. The overall strategy should be one of rural development in its broadest sense, of which, in many areas, incidentally, the control of trypanosomiasis should be an important component (but only a component). The approach to strategies of rural development must obviously differ from place to place but always they must be planned in the context of a dynamic and not a static environment. The single most important factor affecting the ecology of Africa today is the rate of human population growth, high in all countries but starting from different base lines. Change in the African scene is therefore inevitable and a major objective of aid in this context should be to recognise this and, wherever possible, direct change in ways such that it does not result in a steady increase in the already alarming amount of degraded land in Africa.

In the complex process of rural development, science and technology must play a major role—much, obviously, of an applied nature. This does not, I hope, imply that there is no need for further research. The trypanosomiasis, if I can return to that example for a moment, are dynamic diseases which vary enormously from place to place and (particularly important in the context of expanding human populations) from time to time. We need research both in the field in Africa and in laboratories to understand such problems and to ensure that our ability to solve them improves. It should also be borne in mind that much invaluable and innovative research can be stifled if it is judged only in relation to a larger project requiring an immediate "economic return".

I have already touched on some of the subjects on which you say the Select Committee would welcome evidence, but perhaps I should conclude by addressing, where I feel I am qualified, the five specific points mentioned in your letter. My remarks apply only to the aid programme concerned with the agricultural sector (especially the livestock component) in Africa:

1. See elsewhere in this letter. I believe there have been shortcomings in the past. The root of the problem is that life on the land in Africa is generally held in low esteem and is poorly rewarded. If the ability of African countries to feed themselves is to improve, it is from the traditional producers of agricultural products that increased output must eventually come. This will inevitably be a long process involving education, the application of the results of scientific and technological research and cautiously directing change in remote rural societies. There are many memorials in Africa to misdirected aid in the form of disused plantations and cattle ranches, derelict since the overseas "experts" departed.

2. I have no experience of how priorities between "competing" topics are determined. Within a specialised subject, such as research on and control of the trypanosomiasis, small research projects are usually identified by individual institutions or workers and submitted to ODA where they are reviewed (usually in-house) and priorities determined and appropriate projects funded or rejected. At the larger, applied field control project level, the way in which priorities are established has never been clear to me. Often there seems to have been inadequate consultation with specialists outside of ODA.

3. I understand that a major re-organisation of the way in which at least some aspects of the aid programme are managed is underway within ODA. It is too soon to say whether or not this will lead to "discernible trends in United Kingdom policy".

4. Here I think one must distinguish between the individual research project and the application of scientific and technical aid in the field. With regard to the former, I believe that in my own specialised field the balance between applied and more fundamental research funded by the United Kingdom is about

right. Clearly recipient countries need to apply new advances to help solve practical field problems as soon as possible. However, it would, I believe, be a mistake not to also undertake more fundamental research. Africa today is changing rapidly and changing circumstances demand changing technologies to cope with them. The more we know about the basic biology of organisms (be they maize, cows or tsetse flies) the greater will be our options for manipulating them. With regard to the application of scientific and technical aid, I believe there is an increasing need to look at the whole problem of rural development rather than simply at components of this problem. I have enlarged on this elsewhere in this letter.

5. I have no strong feelings about the respective merits of bilateral and multilateral funding of scientific and technical aid. Whereas there are some advantages in multilateral funding, bilateral funding can be more readily "controlled". This can be advantageous or disadvantageous, depending on the policy pursued. Where I do feel strongly is that there is a need for much more liaison between donors (whether bilateral or multilateral). I have seen much evidence of recipient countries playing one donor off against another and of individual donors being unaware of the activities of other donors in closely related projects. This topic is perhaps outside the terms of reference of your Committee and is obviously one that is extremely difficult to address. Nevertheless, it is one that ought to be addressed by some forum if full advantage is to be taken of the enormous amounts of aid that are given to African countries. There are more than adequate total funds to finance a move away from the time-limited field "project" to a broad "rural development" approach, but the way that funding from various sources might be co-ordinated at the grass-roots level is far from clear.

I hope that these comments are of some interest to your Sub-Committee.

A M Jordan
Director
17 March 1989

Letter from the United Nations Industrial Development Organisation

I have the pleasure to refer to your letter of 26 January 1989, inviting UNIDO to provide comments with regard to our experience with, and perception of, the United Kingdom's scientific and technical aid to developing countries.

Our comments, which are attached hereto, are based on our experience with the UNIDO-executed technical assistance which has been funded through voluntary contributions provided by the United Kingdom to the Industrial Development Fund (IDF).

With regard to your Sub-Committee's mandate to "consider the United Kingdom's scientific and technical aid to developing countries", we would like to emphasise the fact that IDF is very much technology-oriented. Indeed, as reflected in its basic mandate, the Fund was established by our Member States specifically in order to provide UNIDO with a tool through which the Organisation would be able to promote the development of non-traditional, innovative, industry-related projects and programmes of relevance to as large a number of countries as possible. In other words, it was designed to promote "technology projects" which other funding sources would be reluctant to finance because of their "high-risk" nature.

The above, together with the positive trend in the United Kingdom's pattern of pledges to IDF, confirms the convergence of objectives of the IDF and those of the United Kingdom's scientific and technical aid to developing countries.

Our comments which cover each of the five specific points mentioned in your letter are presented on separate sheets. We should also mention that the Government of the United Kingdom contributes to the financing of the technology-related activities of UNIDO through its assessed contribution as shown in Annex I amounted to approximately \$2.6 million in 1988. A portion of that contribution is allocated to finance the activities described in Annexes VII and VIII. We have also included a few general points that may be of interest to the Sub-Committee, together with supporting Annexes.

All these comments should by no means be considered exhaustive, and we would be pleased to provide you with more detailed information on topics of particular relevance to the Sub-Committee's review.

Hoping that our submission will prove useful, I wish the Sub-Committee every success in carrying out its important mandate.

Domingo L Siazon, Jr
17 April 1989

Point 1 THE OBJECTIVES OF THE UK'S SCIENTIFIC AND TECHNICAL AID TO DEVELOPING COUNTRIES, AND HOW EFFECTIVELY THOSE OBJECTIVES ARE MET

Considering the (relatively speaking) modest financial resources for technical assistance which the UK channels through UNIDO/IDF in relation to the total bilateral and multilateral resources it allocates globally, it is difficult for us to make a comprehensive comment on this particular point.

However, generally and on the basis of our experience of the assistance sponsored by the UK within the framework of IDF, we perceive the technical and scientific aid supported by the UK as aiming at accelerating industrial and economic growth, with a resultant improvement in conditions in the developing world.

UNIDO maintains close and continuous (formal and informal) contacts with the staff of the Vienna-based Permanent Mission of the UK to UNIDO. It also receives regularly detailed substantive comments on our "pipeline" projects by the authorities concerned in the UK. This feedback shows a particularly high level of competence, sincerity and "involvement" of all concerned. Our combined efforts to ensure a proper pre-approval assessment, technical and financial monitoring and, last but not least, an objective and thorough evaluation of mid-term and end-of-project evaluation (please refer to Annex V) convinces us that the objectives of the UK's scientific and technical aid are, indeed, being effectively met by the projects executed by UNIDO.

Point 2 HOW PRIORITIES ARE IDENTIFIED AND PROJECTS EXECUTED AND EVALUATED

(a) Identification of Priorities

Here again, our comments are limited to the priorities related to projects and programmes promoted within the framework of the UK's special-purpose contributions.

It may be useful to recall the size of the UK contributions to the latter Fund over the past few years:

	<i>Total pledges (US\$ equivalent)</i>	<i>UK pledges (US\$ equivalent)</i>
1985	14,500,000	152,047
1986	17,700,000	360,231
1987	23,300,000	360,231
1988	25,900,000	688,468
1989	33,016,456 ⁽¹⁾	844,595 ⁽²⁾

Notes:

(1) Preliminary figure that is expected to increase to approximately US\$35–37 million.

(2) This is the ninth-largest IDF contribution recorded for 1989; the figure may be compared with the figures referred to in Annex I.

It is estimated that the total technical assistance delivery of UNIDO will reach US\$126 million in 1989, as compared to US\$120 million in 1988 and US\$98 million in 1987. This considerable increase in technical assistance delivery has been achieved despite a marked reduction in the number of UNIDO posts. Hence, there has been a significant improvement in UNIDO's "productivity".

The relevant voluntary contributions are pledged on a yearly basis and on the understanding that UNIDO shall submit individual projects/programme proposals to the authorities concerned in London who establish how well they correspond to established priorities, which are summarised in Annex II.

In UNIDO, each project proposal is subject to a stringent "quality control" process which ensures not only that the individual project is well designed and presented, but also that it meets the priorities of the potential recipient. As part of the above "quality control" process, the projects are submitted to a recently established Project Appraisal Section for thorough and final review, as well as for final screening by our Project Review Committee (PRC), which considers the project in the light of the overall programming matrix of UNIDO. Once the PRC is convinced that the individual project meets the established standards, it clears the project for submission to the UK Government, via the Vienna-based Permanent Mission.

Prior to passing the individual project on to London, the staff of the Vienna-based Permanent Mission discusses the proposal with the UNIDO staff concerned whereupon they prepare a report on the project for the convenience of the authorities concerned in London. Projects which, after review by the UK Government, are considered to be of particularly high priority, are then cleared by the donor authorities for financing from the above-mentioned pledge. An exchange of letters between the UK and UNIDO, dated 14 and 21 August 1978, respectively, serves as the basis for the approval of individual projects (Annexes III and IV).

This interaction requires a high degree of mutual awareness of the established priorities of all parties concerned, ie not only of the priorities of the donor, but also of those of the potential recipients and of the IDF (as established by our policy-making bodies).

The UK's priorities are identified by UNIDO through:

- (i) the receipt of basic policy indications reflecting priority areas, as established and applied by the authorities concerned in the UK;
- (ii) a continuous formal and informal dialogue between staff of the Permanent Mission, visiting staff from ODA Headquarters and UNIDO staff at large, and particularly the staff formally responsible for liaison at the project level;

- (iii) the particularly detailed and "high quality" substantive comments mentioned above which are systematically provided by the UK authorities concerned.

Needless to say, the priorities established by the recipient countries play a key role; they are identified on the basis of continuous interaction with the network of UNDP Resident Representatives, UNIDO Senior Industrial Development Field Advisers (SIDFAs), Junior Professional Officers (JPOs), project experts, etc. Please also refer to our comments on point 4).

(b) *Project Execution*

The individual UK-financed projects are executed in line with established rules and procedures applicable to UNIDO. However, the traditional, usually UNDP-financed, technical assistance projects and the IDF projects funded by the UK differ in one crucial aspect: the voluntary contributions provided by the UK are tied aid. UNIDO is restricted to purchasing services, equipment and other project-related inputs from suppliers in the UK.

(c) *Project Evaluation*

The attached Note, entitled "Evaluation of Projects financed from UNIDO-Administered Funds", dated 29 September 1988, covers the subject matter (Annex IV).

Point 3 WHETHER THERE ARE ANY DISCERNIBLE TRENDS IN UK POLICY AND, IF SO, WHETHER THEY ARE DESIRABLE

Since the UK's priorities with regard to the IDF have been stable over the past years, no new particular trends have emerged with regard to the priority areas of the UK in connection with UNIDO/IDF. In quantitative terms, however, there has been a positive development. Voluntary contributions to the IDF have increased (see P XX). This positive development is, we believe, the result of an increasing awareness on the part of the authorities concerned in the UK of the similarity of objectives between the UNIDO/IDF and the UK's scientific and technical aid. It is, we believe, also the outcome of the many advantages to be derived from collaborating with UNIDO within the multi-bilateral framework, described in some detail on P XX.

Point 4 HOW WELL AID IS ADAPTED TO THE NEEDS OF THE RECIPIENT COUNTRIES

As indicated above, the priorities/assistance requirements of the developing countries are assessed through continuous interaction between UNIDO, the recipient developing countries and the donor countries. Other factors contributing to the process of adaptation are:

- (i) the priorities reflected in the five-year multilateral Country Programmes established by UNDP for each developing country which also take into account national development plans;
- (ii) the substantial feedback obtained by UNIDO through the preparation and execution of an increasing number, and volume, of technical assistance projects (2,367 UNIDO projects were launched in 1988; in the same year, UNIDO fielded no less than 2,211 individual project experts, of which 8.5 per cent were UK nationals (please refer to Annex I); and
- (iii) feedback from the mandatory project evaluations (UNIDO is acknowledged to have played a pioneering role with regard to evaluation of projects in the multilateral context; please refer to Annex V). Furthermore, our SIDFAs and JPOs are in an ideal position to identify priority assistance requirements of the key developing countries, with particular emphasis on industrial/technical and scientific aid requirements. Of special importance, in this connection, is the interaction between UNIDO and our UK counterparts referred to earlier.

The above factors provide a reasonable guarantee that the UNIDO-executed assistance, sponsored by the UK, is indeed well adapted to the needs of the recipient countries.

Point 5 THE RESPECTIVE MERITS OF BILATERAL AND MULTILATERAL FUNDING OF SCIENTIFIC AND TECHNICAL AID

In this context, we would like to focus on the advantages of using the IDF as the channel for the provision of scientific and technical aid. The following aspects are of particular relevance:

(i) *Greater Objectivity*

Multilateral aid is frequently perceived as being more "neutral" and more objective than bilateral aid. It is often felt that it emphasises the interests of the recipient rather than those of the donor.

(ii) *Improved Accessibility*

Countries which, for one reason or another, may be reluctant—or unable—to deal with each other within the bilateral context, may establish fruitful co-operation through UNIDO.

Furthermore, IDF-financed projects benefit from the vast multilateral field network (UNDP Resident Representatives, SIDFAs and JPOs). In addition to providing valuable co-ordinating, liaison and logistic services, this network facilitates the establishment of contracts with individuals and organisations of particular relevance to a given project. Furthermore, projects of a global, interregional,

regional and subregional nature, which aim at reaching a large number of beneficiaries, would be easier to launch within a multilateral context.

(iii) *More Efficient Dissemination of the Results of Technical and Scientific Aid*

It is particularly important that results of successfully completed "technology" projects be disseminated as widely and as quickly as possible. Multilateral channels are in a far better position than bilateral channels to ensure that this key factor is effectively met.

(iv) *Increased Goodwill*

Generally, the major donors channel by far the largest share of their multilateral appropriations through the United Nations Development Programme (UNDP). In so doing, however, the contributions (totalling some US\$1 billion/year) lose their specific "identity" since they are pooled. This makes it impossible to identify individual contributions to specific aid projects.

The opposite holds true for funds which are channelled through the Industrial Development Fund (IDF), where the sponsor of a UNIDO-executed project is clearly identified.

The fact that a certain donor is funding a given multilateral aid project will be known to a far larger number of developing, as well as industrialised, countries than if the same project were to be promoted on a strictly bilateral basis or via the traditional multilateral channel of UNDP. This will obviously have a positive impact on the donor's image and contribute to increased goodwill.

(v) *Technical and Project Preparation Capability at Low Cost*

Consideration should be given to the fact that UNIDO constitutes an appreciable source of competence in the field of industry, science and technology, which is basically financed from the regular budget of UNIDO. Donors are now finding it increasingly attractive to take advantage of this capability, ie to "subcontract" to UNIDO what might otherwise be strictly bilateral assistance activities. Such an approach is cost-saving not only because it obviates the need to establish similar capabilities, but also because the overhead charge (13 per cent) levied by UNIDO is relatively modest.

GENERAL POINTS OF INTEREST

(a) *Possibility of Providing Tied Contributions*

As briefly mentioned in section (b) of our comments related to project execution (P XX), under the new Financial Rules of UNIDO which went into effect in January 1988, the Organisation is in a position to accept "tied" voluntary contributions, should the donor so prefer (and should the recipient agree thereto). In practical terms, this means that the standard (multi-lateral) procedure requiring *international* competitive bidding can be replaced by a *national* bidding procedure, limited to suppliers of goods and/or services in the donor country.

(b) *Policy Guidance*

By sponsoring a large volume of aid and by actively involving itself in the scientific and technical assistance activities of UNIDO, a given Member State/donor will be able to exert some influence on the general direction of the work of UNIDO, thus supplementing the guidance given through the intergovernmental bodies of the Organisation.

(c) *Co-ordination*

Concern is often expressed about the need to ensure proper co-ordination between national, multilateral and bilateral development aid activities. In recognition of this important requirement, UNIDO does not launch any of its national projects without having first obtained the formal endorsement of the Resident Representative in the potential recipient country. The latter is responsible for ensuring that the given project fits in with the national priorities of the recipient country and that it does not duplicate past, present or planned national, multilateral and/or bilateral activities. It may be added that UNIDO has gone further than probably any other specialised agency of the United Nations System in integrating its field activities with the field office system established by UNDP. This is an added guarantee for the efficient co-ordination of UNIDO-executed projects with those of other donors.

(d) *The UK as a Supplier of Staff Members, Individual Experts, Consulting Services and Equipment for UNIDO's Technical Assistance in 1988*

It might finally be of some interest to the Sub-Committee to take note of the UK's involvement—in quantitative terms—in the technical assistance activities of UNIDO and its staffing in 1988. The relevant information is presented in Annex I.

(e) *The Private Sector in Developing Countries*

Since 1985 UNIDO has devoted special attention to securing greater involvement of the private sector in developing countries, both as recipients of aid and as partners in the development process. We believe that this new thrust in our operations is in line with policies established by the Government of the UK.

(f) *List of UNIDO-Executed Projects Financed through the UK's Contributions to the Industrial Development Fund*

Please refer to Annex VI.

LIST OF ANNEXES

[not published]

Annex I:	General data on the contribution of the UK to the activities of UNIDO.
Annex II:	IDF-specific information.
Annexes III and IV:	Exchange of letters constituting basic agreement between the UK and UNIDO on the financing of IDF projects.
Annex V:	Evaluation of projects financed from UNIDO-administered funds.
Annex VI:	Listing of UK-financed IDF projects as from 1 January 1978.
Annexes VII and VIII:	The technology programme of UNIDO.

Memorandum by the University of Birmingham

1. A wide range of scientific and technical support is provided by the University of Birmingham to developing countries.

The most usual form of support is provided by the significant number of overseas students who register for both undergraduate and postgraduate degree programmes or for postgraduate research and training at the University of Birmingham. All of the University's degree programmes are open to overseas students and, particularly in engineering where approximately 25 per cent of the student population come from overseas countries, the relevance of their content attracts many candidates. For example, chemical, biochemical and minerals engineering undergraduate courses and civil engineering postgraduate courses are of specific interest and attract many overseas students from developing countries. In the latter case, the MSc(Eng) Postgraduate programmes in Highway Engineering for Developing Countries and in Traffic Engineering for Developing Countries are specifically tailored for their needs.

Some overseas students come on visits to the University for specialist experience and/or to gain access to facilities or equipment not readily available to them. Others attend specialist short courses specifically tailored to their requirements. Some of these courses are operated in individual developing countries by University Staff from Birmingham. An example would be the successful series of seminars organised by the University through Global Traffic Safety trust, which are provided in the host country. These courses are supported by the host country or agencies, such as the Overseas Development Corporation, the British Council, UNDP or the World Bank.

An example which illustrates the extent to which overseas students register for higher degrees at the University is the School of Biological Sciences where between about 25 per cent to 30 per cent of PhD students are from overseas, many of whom come from developing countries.

Finally the University has many collaborative research projects and agreements with overseas universities and many staff provide occasional advice or expertise on a consultancy basis to developing countries. Other staff take part in frequent visits to overseas countries on an individual basis.

2. Projects are largely identified on an "ad hoc" basis according to the interests and expertise of individual members of staff or research groups within the overall teaching and research objectives of academic schools in the University. Specific courses, as outlined above, are set up for students from developing countries. Personal contacts or initiatives usually provide the starting point for such projects and the objective of fostering contacts with developing countries for the dissemination of knowledge and training is seen by some as a very legitimate scientific and moral outlet for the University's expertise.

3. The general impression is that work of this kind is increasing in the University partly as a result of the recognition of the importance of attracting overseas students in general, and partly from the response to the increasing number of approaches direct from developing countries.

There is an emphasis placed on the overall balance of teaching and research activities in academic schools in the University in which the total number of overseas students is related to the number of UK and EC students on degree programmes.

4. Scientific and technical support is specifically adapted to the requirements of developing countries where special post-experience courses are tailored directly to meet those requirements or where degree programmes, such as those mentioned under 1. above, depend entirely on overseas recruitment.

Expertise and advice is given in response to particular problems by individual members of staff.

In the School of Public Policy specific help is given, in the form of short courses within the Department of Development Administration, on the management of technology in developing countries. This includes basic Information Technology operating skills and software development, training in finance-orientated spreadsheet software, and consultancy advice on data management.

5. It is surely advantageous to the UK to have UK earmarked bilateral funds for this purpose and it would be beneficial if more funding was available to research and teaching to ensure the presence of UK influence within developing countries. An example of this is the work of the Overseas Unit of the Transport and Road Research Laboratory which is of particular significance at Birmingham and leads to a greater awareness of British "know-how" in developing countries which extends beyond the particular field.

The universities in general, and the University of Birmingham in particular, play a major role in the provision of scientific and technical aid to developing countries which is of great benefit to the UK.

4 April 1989

Letter from the University of East Anglia

I am writing in response to the invitation to submit written evidence to the Sub-Committee under the Chairmanship of Lord Caldecote, which was established "to consider the UK's scientific and technical aid to developing countries".

The School of Development Studies at this University has extensive experience of UK scientific and technological assistance in the field of agriculture and natural resource development. This experience leads us to make the following observations:

- (1) The objectives of UK scientific and technical aid (STA) to developing countries, like those of overseas aid in general, should be to contribute to economic growth and to a more equitable distribution of the benefits of growth (and in many cases, to poverty alleviation) in recipient countries.
- (2) In view of these objectives it is desirable that measures should be taken to reduce the scattered and *ad hoc* nature of STA as it has been provided hitherto. It would be worthwhile considering selection of a number of countries (in terms of criteria of need and growth potential) for long term (7–10 years) research investment programmes. Long term commitments are particularly to be desired in agricultural and agriculture-related activities. Long term programmes would be mounted and subsequently monitored by joint appraisal and review/evaluation missions in collaboration with the key national agency (eg Science and Technology Commission of National Research Council). Assistance to the secretariats of such bodies may also be in order. Research in the recipient country's University sector would be encouraged by, for example, secondments or the setting up of joint research teams.
- (3) Relevant criteria of cost-effectiveness, appropriateness and social impact of research and of scientific and technological innovation must be developed and applied to minimise the widespread distortions which occur in this area. "High-tech" applications (eg in biotechnology or micro-computing) will often be appropriate but it is necessary also deliberately to search for "intermediate solutions to problems, respecting and drawing upon indigenous technical knowledge.
- (4) Access to international research output and interpretation of its implications, often require strengthening to avoid "re-inventing the wheel".
- (5) Collaborative inter-agency/university research and training contracts (UK and recipient country) could be funded from an earmarked and large special programme administered by the Higher Education Division of the British Council, and replacing its poorly-funded "university link" arrangements.
- (6) The initial programme should be bilaterally funded but, once established, invitations to known centres of expertise elsewhere in Europe could be extended, these inputs to be funded from bilateral or EC sources.
- (7) ODA/BC should establish procedures, including using *external* advisers, to ensure a systematic approach to utilisation of the UK's depth of expertise in appropriate STA.

If you would like further clarification of any of these points, please let me know.

Professor Derek C Burke
Vice-Chancellor
6 March 1989

Letter from the University of Keele

I am writing at the request of the Committee of Vice-Chancellors and Principals in respect of the above. At Keele we would rely on a CVCP response, but points we draw attention to are:

- (1) The discernible trends are on the reduction of funds and on the consequent fall in the number of academic exchanges and of funded students coming to the UK for training.
- (2) Reduced funding for the British Council is diminishing the number of academic links with developing countries and thus affecting both the direct scientific and technical aid as well as the training provision given to students. Such links need well-defined goals specified clearly in advance to be fully effective. However if allowed to develop (with monitoring) over several years they can be very cost effective means of technology transfer.
- (3) The ORS Awards Scheme and the ODASS Scholarship system forms a very useful and effective way of providing training. The system would be improved by more funds being allocated to similar schemes, noting that for the ODASS scheme universities only have very limited resources from which to make their contribution.

Professor Brian Fender, CMG
 Vice-Chancellor
 29 March 1989

Memorandum by the University of Southampton, Department of Geography

Submission made in response to a letter from the Sub-Committee Clerk to the Chairman of the CVCP.

The numbering is that in the letter to the Chairman.

1. Effective aid is aid which is properly targeted towards basic development projects. Most of these are not glamorous and will not make banner headlines. The UK should distance itself as far as possible from propaganda exercises. Successful projects will spread their own news amongst those who need to know and the source of the help will become known.

2. Criteria for setting priorities should be set by recipient communities but should include:

- (a) the desirability of the project as seen by the people it is destined to help, as well as by national governments;
- (b) the contribution of the project towards meeting basic subsistence rather than balance of payments difficulties, themselves partly created by misdirected aid in the past;
- (c) the inter-connectedness of projects where success in one can be reinforcing for others;
- (d) the extent to which the project lies within the capabilities of local communities and does not depend upon expensive inputs from abroad;
- (e) the degree to which local marketing and co-operative mechanisms are not disrupted;
- (f) due appreciation for conservation of resources and the environment;
- (g) long-term sustainability.

3. The trend towards assisting the very poor in development programmes is desirable, but the priorities should be set by the very poor themselves. The profits of middlemen and of government agents in the recipient countries should be minimised by dealing directly with the end recipients or through non-governmental agencies. The trend towards greater co-operation with voluntary agencies is to be welcomed as likely to provide aid on a scale which can be absorbed properly and in situations of greatest need. Greater use might be made of direct contracting with British universities, specifically in the field of basic research and advice.

4. Whether or not aid is adapted to the needs of the recipient countries depends upon how needs are defined. Often the definition is the work of local elites alone and, in consequence, is frequently orientated towards meeting what they perceive as the problems. Inevitably, they see things from a distance, usually from the towns rather than the countryside and in terms of inappropriate (in a financial and sustainability sense) high tech solutions to particular problems. A holistic approach is often needed and one that makes use of intermediate technology.

5. The respective merits of bilateral and multilateral funding have long been debated. Bilateral arrangements certainly help the donor to keep tight control over aid and to direct its application in its own narrow interests. Multilateral aid is more difficult for a donor country to control but, because of that, can be seen as more likely to be free of political strings and more disinterested. The recipients are more likely to be able to control the deployment of multilateral aid.

11 April 1989

Letter from the University of Stirling

I wish to submit the following statements for consideration by the Select Committee based on the experience of this University through its Institute of Aquaculture in overseas aid programmes.

1. The objectives of the UK scientific and technical aid to developing countries, in so far as we understand them, have always appeared sound. The main concern we have is that the loss of a generation of scientists with colonial experience, and the cut-back on basic research base in the Universities, makes it very much more difficult for Universities to respond to bilateral and multilateral based requests. In addition, the inability of the British Government to respond like other governments to multi-lateral awards, with counterpart funding, puts UK institutions at a serious competitive disadvantage v, eg France.

2. The level of competence within ODA for identification and execution via University or consultancy initiated projects is high and the evaluation is, if anything, excessive given the difficulties of working overseas or on tropical problems in the UK. We strongly support the devolving of project management, especially to universities active in the overseas research and development field.

3. There are undesirable trends away from ODA being prepared to pay for adequate basic research, overheads and real UK science base costs in its efforts to be as cost effective as possible. This will destroy the base from which future research will grow if not subsequently redressed.

4. In general, aid is well adapted to needs of recipient countries, though at times excessive weight is attached to *directly* supporting the poorest instead of supporting developments which will ultimately generate employment for them. We strongly support the increased involvement with NGOs.

5. It seems very obvious to this University, with considerable experience of working for British and Scandinavian bilateral agencies, and for multilaterals, that the British bilateral programme, and the UK research base backing it, are by far the most cost effective, capable and successful at delivering. However, the increased pressure to reduce staffing in the Civil Service and to remove core funding and basic general research base from universities is rendering it very unlikely that this will be so by the 1990s.

Professor A J Forty
Principal and Vice-Chancellor
10 March 1989

Memorandum by Ministry of Higher Education, Science and Technology, Zambia

1. Zambia attaches great importance to the development of a strong scientific and technological base. To this effect, a Science and Technology Committee in the highest policy-making body, the Party Central Committee, has been established, so has a Ministry of Higher Education Science and Technology.

2. The administration factors constraining the development of science and technology are:

- (i) the paucity of suitably qualified manpower; and
- (ii) the scarcity of resources with which to acquire (often from overseas sources) scientific requisites such as literature; laboratory equipment and reagents.

3. British government scientific and technical assistance to the education sector addresses, mainly, the constraint at 2(i), the paucity of trained manpower. This is done in two ways; by providing training awards. In 1987, for example, the UK provided 63 secondary school teachers (mainly for science and mathematics), 25 experts to the Departments of Technical Education and Vocational Training, 26 experts to university level education and 186 scholarships for study in the UK. Thus the UK was the largest donor in this sector.

4. The effect on science and technology of UK assistance has been substantial. However, greater results would have been achieved if there was a balance between provision of manpower and provision of equipment and books. There would thus appear to be merit in projectisation of at least some of the assistance. This way, when an expert was provided the basic requisites for his or her work would be part of the package, thus enhancing his or her effectiveness.

5. Mechanisms for discussion and decision-making between the UK aid agencies and Zambia are adequate. The Joint Manpower Review past strategies and achievements and agree on the framework for future assistance.

May 1989

Letter from the Ministry of Finance, Economic Planning and Development, Zimbabwe

I acknowledge with thanks receipt of your letter dated 27 April concerning the above subject matter.

I have received the following replies to your questionnaire:

- (1) UK assistance is well adapted to the needs of Zimbabwe, more so because our education system is similar to that of the UK and a number of our scientists were trained there.
- (2) Compared to other recruits from both bilateral and multilateral agencies, UK assistance has the advantages of historic ties, use of the English language and the fact that English scientific journals have a wide circulation in Zimbabwe. Other countries have to contend with language barriers and the fact that their literature has limited circulation in Zimbabwe.
- (3) The mechanism for discussion and decision making works well, particularly in those agencies that have a satisfactory level of qualified local staff to draw up detailed "Terms of Reference".

Most agencies that make use of this facility are satisfied with this form of co-operation more so since the provision of this assistance is tied up to the provision of further training of locals here and abroad.

I trust that this information will be of use to your Committee.

13 June 1989

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